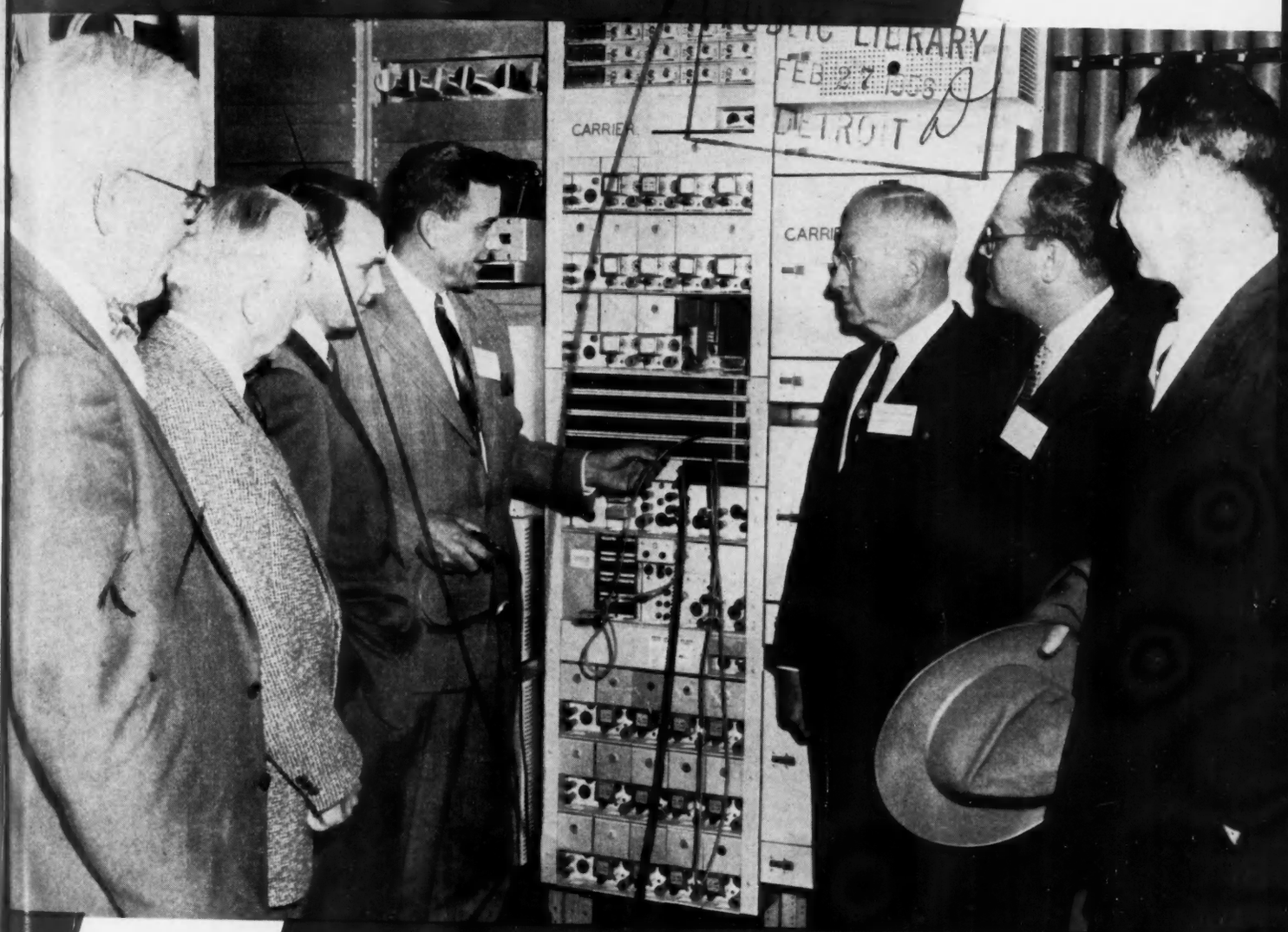
DEPT.

# TELEPHONE and Management ENGINEER

FEBRUARY
1956

60-2




THE NATIONAL TELEPHONE MAGAZINE

Featuring In This Issue—

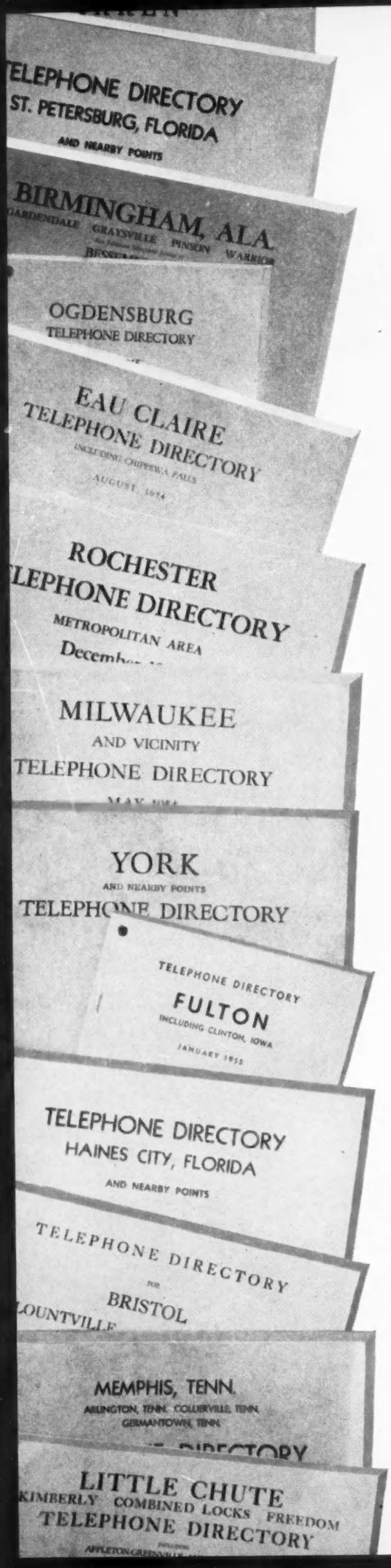
★ KEEPING UP WITH THE PARADE OF PROGRESS, by T. DeWitt Talmage

★ YOUR ... TION TO ..., by Phil Glanzer

★ MAINTA... ... by Burk S. Richards

★ NEWSLET... ... WASHINGTON

EDITORIAL ... 45




# TELEPHONE DIRECTORY ADVERTISING EXCLUSIVELY

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**DAYTON, OHIO**

# DESIGNED FOR THE FUTURE

## TELECABLE®

EXCHANGE AREA CABLE

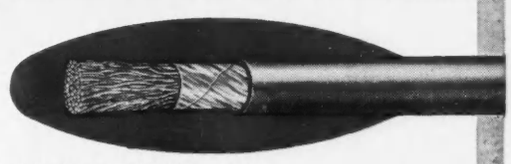
## EFFECTS ECONOMIES TODAY!

Your needs today, when correctly interpreted and properly met, mean tremendous savings in the future.

TELECABLE Exchange Area Cable meets today's needs and, as manufactured under Whitney Blake high standards of quality, promises to favorably affect the future economy of the Independent Telephone Industry as greatly as WB TELEPRENE® neoprene jacketed drop wire has in the past ten years.

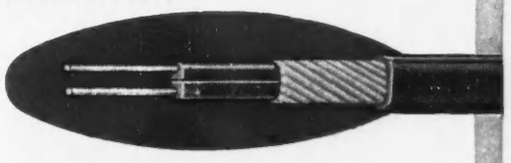
Only products of the highest quality can effect such economies — and the Whitney Blake reputation for top quality products is known throughout the industry.

TELECABLE Exchange Area Cable is available in #24, #22, and #19 AWG, in 11, 16, 26, 51, 76, 101, 152 and 202 pair. It has polyethylene insulation, polyethylene tape over cabled pairs, an aluminum shield and black weather-resistant polyethylene jacket.



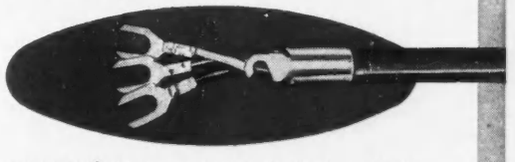
**TELECABLE Inside Wiring Cable**

TELECABLE INSIDE WIRING CABLE has semi-rigid Plastite® insulation and brown or ivory Plastite jacket. Light in weight. Water resistant. Excellent electrical characteristics. Unaffected by humidity. Ideal for duct work.



**TELEPRENE® Neoprene Jacketed Drop Wire**

Famous WB long life drop wire has demonstrated that a BETTER wire is much more economical than a CHEAPER wire.



**TELECORD® Neoprene Jacketed Telephone Cord**

This sturdy, long-lasting telephone cord resists abrasion, perspiration, humidity, oil and grease. Specify TELECORD on new telephones and on replacements for economy and service.

INDEPENDENT

Well Built Wires Since 1899

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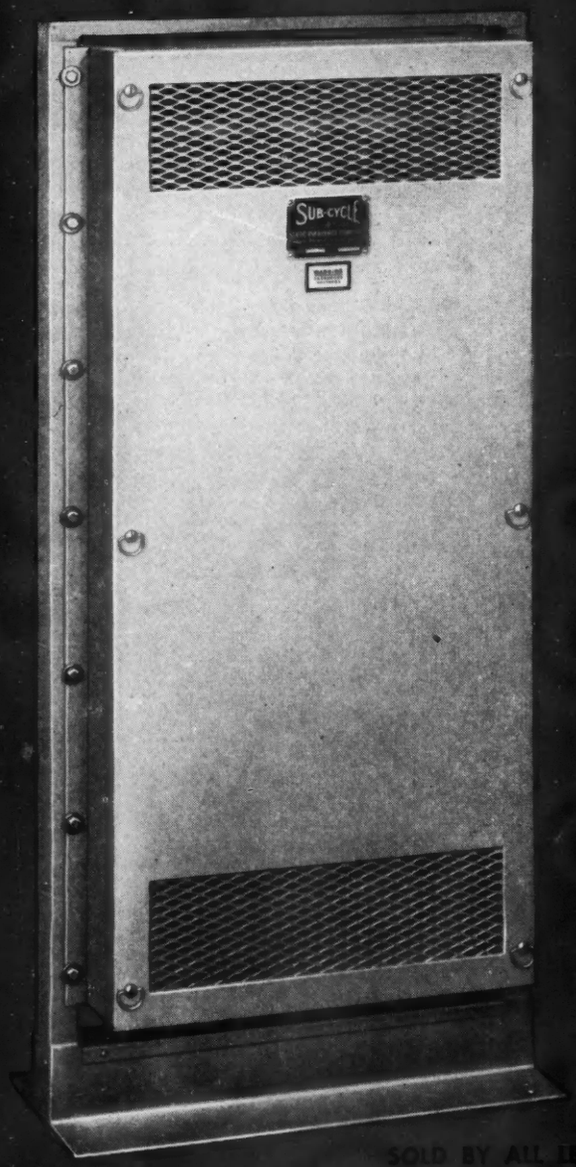
## WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT

another FIRST by Lorain!

THE S-5 SUB-CYCLE

FOR SYNCHRONIC RINGING!




PERMANENT
Dependable
OPERATION!
YEAR AFTER YEAR

Making use of a unique conversion principle combined with basic Sub-Cycle circuits used repeatedly in other Lorain equipment, the S-5 Sub-Cycle has power to spare. Depend upon it to deliver full-rated capacity even under the most gruelling conditions. It has excellent voltage regulation, and will always deliver the exact synchronic ringing frequencies. The S-5 has no moving parts; therefore, it provides the permanently maintenance-free, economical operation that is characteristic of all Sub-Cycles.

The Model S-5 can be equipped to supply either 15 cycles or 20 cycles as the ringing frequency; if only four frequencies are required, the converter is designated as a Model S-4. A minimum of floor space, only 24-3/8" by 15" is required.

WRITE FOR BULLETIN 569

SOLD BY ALL LEADING TELEPHONE DISTRIBUTORS

LORAIN PRODUCTS CORPORATION · LORAIN, OHIO

FLOTROL
PARTNERS IN DEPENDABILITY
SUB-CYCLE

# TELEPHONE ENGINEER

and Management

A Telephone Engineer Publication

FEBRUARY 1956

Vol. 60 No. 2

The National Telephone Magazine

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## FRONT COVER

**CLARE E. WILLIAMS, pres. of General Telephone Co. of Ohio was host to a group of over 100 business executives, government officials and engineers who came from many parts of the country to attend a trial run of the new Bryan-Antwerp-Ft. Wayne microwave system. Our front cover photo shows Pres. Williams explaining the operation of some of the new microwave equipment in Antwerp to a few of the company's guests. On the far left is FRANK J. BAKER, general superintendent of The Home Telephone & Telegraph Co. of Fort Wayne, Ind., which operates the Fort Wayne part of the new system. State Representative, WILLIAM H. RYCHENER of Pettisville, and State Senator WILBERT L. LATTA of Bowling Green are standing (L. to R.) next to Williams. Over to the right is State Representative WALTER GARDNER of Bryan; Secretary of the Public Utilities Commission of Ohio, BASIL BARITSKI; and E. L. WEATHERHEAD, industrialist from Antwerp (nearest to the camera — r).**


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# coming CONVENTIONS

***Kentucky Independent Telephone Association, Phoenix Hotel, Lexington, March 6, 1956.***

***Texas Telephone Association, Baker Hotel, Dallas, March 12 and 13. 1956.***

***Ohio Independent Telephone Association, Deshler-Hilton Hotel, Columbus, March 27 and 28, 1956.***

***Nebraska Telephone Association, Omaha, (Hotel to be selected), April 3 and 4, 1956.***

***Iowa Independent Telephone Association, Hotel Fort Des Moines, April 10 and 11, 1956.***

***North Dakota Telephone Association, Gardner Hotel, Fargo, April 24 and 25, 1956.***

***Indiana Telephone Association, Claypool Hotel, Indianapolis, May 9 and 10, 1956.***

***Illinois Telephone Association, Hotel Pere Marquette, Peoria, May 16 and 17, 1956.***

***Wisconsin Independent Telephone Association, Lorraine Hotel, Madison, May 23 and 24, 1956.***

***Pennsylvania Independent Telephone Association, Bedford Springs Hotel, Bedford, May 22 and 23, 1956.***

***Washington-Oregon Independent Telephone Associations, Hotel Multnomah, Portland, Ore., May 31, June 1 and 2, 1956.***

***Kansas-Missouri Telephone Associations, Hotel Muehlebach, Kansas City, Mo., June 4 and 5, 1956.***

***Alabama-Mississippi Telephone Associations, Thomas Jefferson Hotel, Birmingham, Ala., November 12-13, 1956.***

ASK FOR CARRIER BULLETIN C-554-2

Available in Canada through ERICSSON TELEPHONE SALES of CANADA, Ltd. 1410 Stanley Street Montreal 2, P.Q.

NORTH

# ...private service..."

COUNT the lines on which you are now selling "multi-party" service. Multiply by four.

There you have the number of customers for whom you can provide private lines by making use of North Telephone Carrier. You can do it at a surprisingly low cost compared to the improvement in service —and in revenue. You can do it in most instances without adding a pole or a crossarm.

Perhaps you have thought of carrier in terms of adding customers by tens and twenties. You can do that, too, because each North channel will serve as many stations as any metallic pair. Four channels can be "stacked" on a line without disturbing the physical circuit.

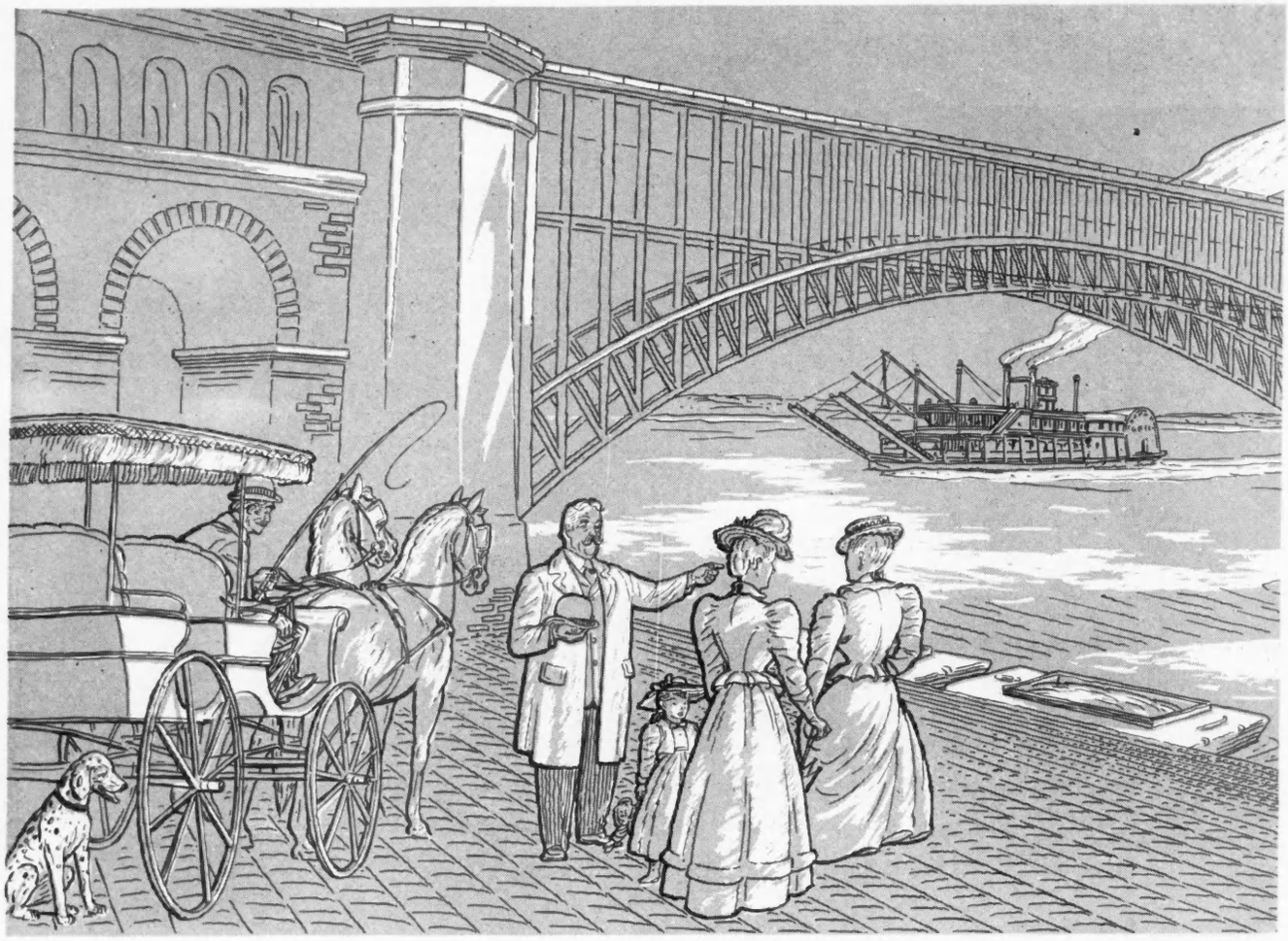
But, on today's high standard of living more customers want a higher standard of telephone service. More of them can afford to pay for it. The low cost of carrier-borne circuits makes it a sound investment for you to fill this increasing demand. The best way is to . . .

***increase capacity for private***
***or two-party service***
***on existing lines with***

# NORTH CARRIER

## NORTH ELECTRIC COMPANY

655 South Market Street, Galion, Ohio



St. Louis, 1897

# 58 years isn't very long–

*not when you consider what has been done*

With companies, like people, it's not just how old you are but what you've done with your time that earns your rating. Without boasting, we think we've rung up a pretty solid record, working *with* and *for* Independent Telephony.

In 1896, with 20 years of telephone pioneering behind him, Milo Gifford Kellogg was commissioned to build and install in St. Louis the largest manual switchboard ever installed in a one exchange room up to that time.

Our company was founded and already moving ahead for the Independents in 1897. Other big installations came quickly . . . New York, Buffalo, Cleveland, Indianapolis. More than 9000 Kellogg Switchboards were built and installed in the next 17 years!

It was only the beginning. We believe that greater accomplishment has been the long list of "firsts" we were able to make available in common cause with the Independents. The *first* cradle type telephone, the *first* solid-back transmitter, the "four-frequency" harmonic telephone system and thirty or more other revolutionary advances, including the Crossbar, *developed* and *created* by Kellogg.

Now, through our partnership with IT&T we have gained vast new research facilities and the ability to serve you even better, with even finer equipment.

This we pledge to do, so that Kellogg and the Independent Telephone Industry can stride ahead with ever improved service!

KELLOGG — DIVISION OF IT&T

**KELLOGG SWITCHBOARD AND SUPPLY COMPANY**
*A Division of International Telephone and Telegraph Corp.*
SALES OFFICES: 79 West Monroe Street, Chicago 3, Illinois

*from KELLOGG . . .* 〉 *. . . BETTER PRODUCTS for BETTER INDEPENDENT SERVICE*

# INDUSTRY NEWSLETTER

## INCREASED RADIO USAGE

***Increased use of radio*** for telephone communications in the next few years was predicted at the Winter General Meeting of the American Institute of Electrical Engineers. The forecast was made by M. C. Harp and M. H. Kebby of Lenkurt Electric Co., Inc., San Carlos, Calif., at the conclusion of a paper "A Seventy-Two Channel Radio System for Toll Telephone Service," presented at a symposium on radio communications systems.

"***There can be no doubt*** that the next few years will witness a marked swing to the use of radio in the normal growth of short and medium haul toll circuits in the telephone industry," they reported.

***Microwave equipment*** for several years has been used for long distance telephone communications, and there has been a growing demand for such equipment for short and medium hauls, they pointed out, adding that in many cases radio is more economical and reliable than conventional wire systems. Such a radio link is being utilized between Seattle, Wash., and Vancouver, B.C., in mountainous country on the Pacific Coast and in the Hawaiian Islands.

"***Perhaps the most significant*** of the Type 72B Installations," they said, "are those being made where no particular barriers exist, or where the capacity of exisiting land lines could be increased with additional crossarms. Several such installations have been or are being made, in some cases because radio systems can be installed more rapidly than a pole line, but generally because economic studies have shown that the additional channels will cost less, will be easier to maintain, and will be more reliable if radio is used."

## MINIMUM WAGE

***Higher minimum wage rates*** for learners in Independent telephone industry will go into effect March 1, when the national minimum wage is increased from 75 cents to $1. an hour, under terms of legislation enacted last year.

***Administrator Newell Brown*** of the US Labor Department's Wage & Hour Division announced Jan. 26, that present learner rates of 67½ cents hourly for the first 320 hours and 72½ cents for the remaining 160 hours of the 480-hour authorized learning period will be raised to 80 cents for the first 240 hours and 90 cents for the remaining 240 hours.

***Special learner regulations*** are also being changed, effective on the same date, to permit employment of learners at these rates in exchanges with less than 3000 stations, instead of the 2000 stations presently provided. For exchanges of 3000 or more stations, the order provides that learners may be employed for corresponding learning periods at 85 cents and 95 cents when unusual circumstances are shown to exist. Mr. Brown also removed the limitation as to the number of learners that may be hired by telephone exchanges employing 18 operators or less. However, the limitation as to the number of learners that may be employed at one time was retained.

## $500,000,000 PROGRAM

***Donald C. Power,*** pres. of General Tel. Corp., has announced that the telephone companies within the General System would spend more than $500-million during the next three years for expansion and development of telephone facilities. "We expect to gain half a million telephones through internal growth during the same period," Mr. Power added.

## NEW REA ROUTINE

***Applicants for REA telephone loans*** will no longer need REA approval of their selection of an engineer to perform pre-loan services, Administrator Ancher Nelsen has announced. The change in procedure is expected to reduce the amount of paper work required of applicants seeking REA financing to extend and improve rural telephone service.

***The new procedure*** permits applicants more flexibility in deciding how their pre-loan engineering shall be provided. Although REA will continue to make available a standard contract form, its use will be optional and REA approval of the pre-loan engineering contract is no longer required.

***The change in procedure*** places more responsi-

# INDUSTRY NEWSLETTER

*(Concluded From Page 9)*

bility on applicants to assure that the detailed engineering survey and design are prepared economically and in a manner satisfactory to REA as a basis for considering a loan application. Mr. Nelsen emphasized that these engineering studies not only constitute part of the basis for a loan, but will serve as the basic plan for construction in the event a loan is made.

***As in the past,*** reasonable costs for the preparation of acceptable engineering reports may be reimbursed out of loan funds, if a loan is subsequently made.

## NETWORK TV

**1955 *was another year*** of extensive growth for network television. Long Lines Department of American Tel. & Tel. Co. reported that during 1955, network service was extended to 34 additional stations and 29 cities. Over 70,000 channel miles of Bell System facilities now link 391 stations in 262 cities in the U. S.

***Color network television*** reflected even a greater expansion in 1955, Long Lines noted. With 51 stations and 33 cities having been equipped for color transmission during the year, there are now 51,000 channel miles linking 190 stations in 134 cities to the color network. In 1955, the World Series, as well as a number of football games, were broadcast in color for the first time. During the year there was an increase in the use of closed-circuit television and one of these occasions, the largest inter-city hook-up — for the Marciano-Moore title fight — was provided by Long Lines. 133 outlets in 90 cities received the fight.

## NRECA MEETING

***The National Rural Electric Co-op Assoc.*** (NRECA) at its annual convention in St. Louis last month asked that Congress approve $100,000,000 in new funds for the telephone program in fiscal 1957, beginning July 1. President Eisenhower's budget provides for an $80,000,000 farm telephone program in the upcoming fiscal year, but only about half of it would be new funds, with the rest carried over from previous authorizations.

***The association also adopted*** resolutions asking Congress to issue a directive that the "rural telephone program be expanded, with preference being given to cooperatives," and one calling on its members to actively encourage neighboring farm telephone co-ops to become members of the National Telephone Cooperative Association (NTCA).

***At its convention NTCA*** adopted a number of resolutions, including one which said present toll settlement procedures do not make any allowance for service station-originated calls, and urged that an "equitable toll settlement for service station lines" be established. Other resolutions: sought limitation of the equity requirement for existing and potential subscribers in the urban base rate area of a telephone co-op to $5. per subscriber, retroactive in all loan contracts where urban areas are involved, and said that acquisition of high-density urban areas is essential to loan feasibility; recommended that equity requirements for any part of a borrower's territory be restricted to $10. per subscriber, retroactive on all loans to co-ops, with co-ops to be permitted to accept equity capital notes from potential subscribers in lieu of cash.

***NTCA asked REA*** to "do what is necessary to stimulate cooperative development in the telephone industry through the rural telephone act"; urged Congress to apropriate $100,000,000 in new loan authorization for the telephone program in the upcoming fiscal year; called for a five-year grace period for all telephone borrowers before loan repayments are required; urged elimination of the federal excise tax on telephone service; and asked the government to assume all responsibility for relocation of facilities for federal-aid highway construction.

## EXPANSION & IMPROVEMENTS

***Ernest Sprague,*** owner Lake City (Mich.) Tel. Co. announced company will spend $50,000 to improve service . . . Verona (Mo.) Tel. Exchange will be converted to dial by October 1 . . . Illinois Central Tel. Co. will convert Princeville exchange to dial in April . . . Purdy (Mo.) Tel. Co. started work on $170,000 expansion program . . . United Tel. Co. of the West is planning dial system for Chappell, Neb. . . . Union Tel. Co. started $300,000 expansion project at Dowagiac, Mich.

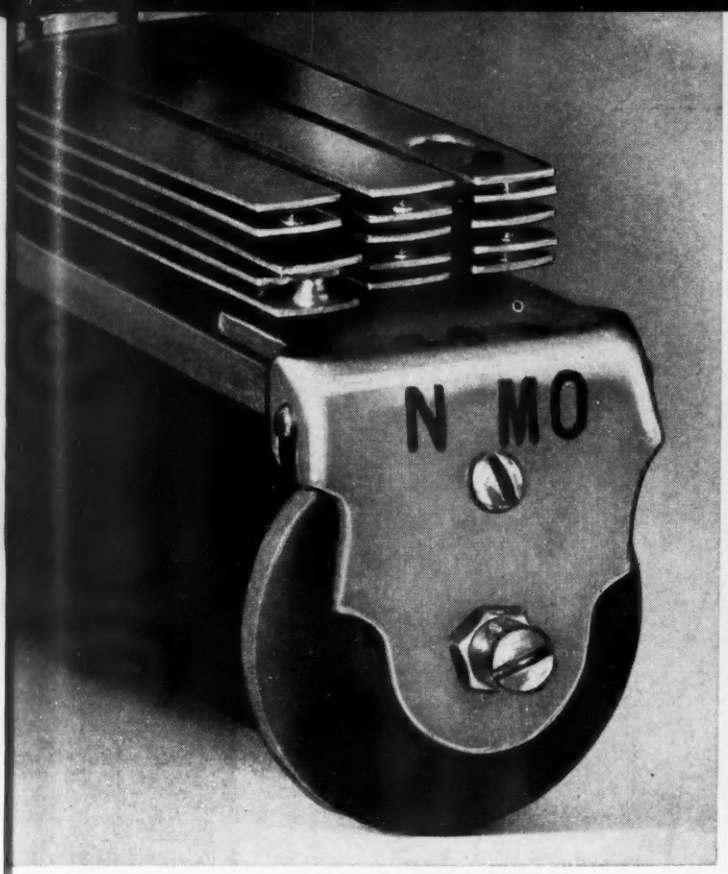
***Citizens Tel. Co. Inc.*** completed its $685,000 dial conversion project with recent cutover at Bridgman, Mich. Pres. David W. Davis reports the company now provides dial service to 2100 subscribers . . . Garden Valley Tel. Co. has started installation of dial equipment at Bagley, Minn. . . . Southwestern States Tel. Co. will convert its Mamou, La. exchange to dial in Oct. . . . Norman Gibbons, mgr. of the Purdy (Mo.) Tel. Co., announced acceptance of bid for new dial central office equipment. Purdy exchange will be cut to dial on Oct. 15.

## NEW RATES

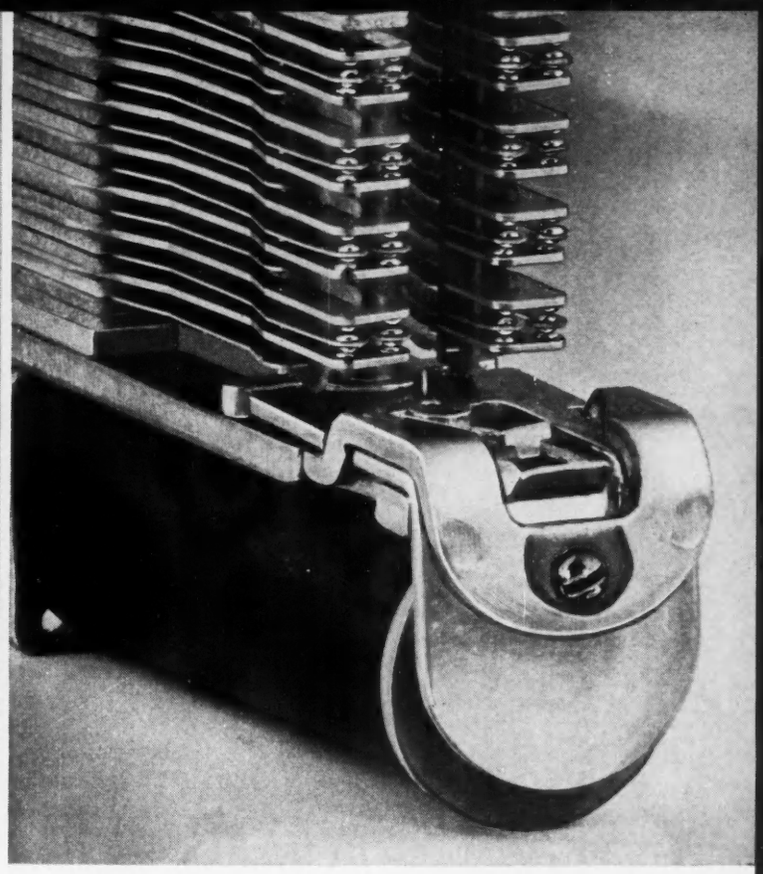
***Midstate Tel. Co.,*** Heartwell, Neb., granted authority to increase rates. New rates will produce 4.32% return . . . Georgia Continental Tel. Co. will increase rates at Taccoa, Ga. upon conversion to dial . . . New rates of the Fairmount (Ga.) Tel. Co., will produce 5.8% on $67,631.50 investment.

## MORE PEOPLE TO SERVE

***The real "Why"*** for telephone growth in California is found in fact that the state is gaining population in far greater numbers than any other state. The Census Bureau has reported that between the 1950 census and mid-1955, California gained 2.5 million to reach a total of 13,032,000. New York had 16,125,000, up 1,293,808.




Spring pile-up of conventional relay with single contact. A typical exchange has thousands.



Spring pile-up of Stromberg-Carlson "A" Type Relay, showing twin precious metal contacts.

# *When is 2 to 1 actually 22 to 1?*

## ANSWER: When you're talking about the comparative reliability of Twin versus Single contacts

The XY® Dial System employs twin contacts throughout—in switches, relays and all spring pile-ups. And that means very great savings to *you*. Here's why:

Laboratory tests show that single contacts—at 30 grams pressure—will probably fail in the ratio of 4.3 to a million operations. At the same total pressure (15 grams on each contact), the failure probability of double contacts is .18232 per million operations.

That's exactly 22.7 to 1 in favor of XY and a great saving in maintenance costs—just one of many reasons why the trend is to Stromberg-Carlson. Why not ask your nearest branch to tell you *all* of the superior features of this equipment?

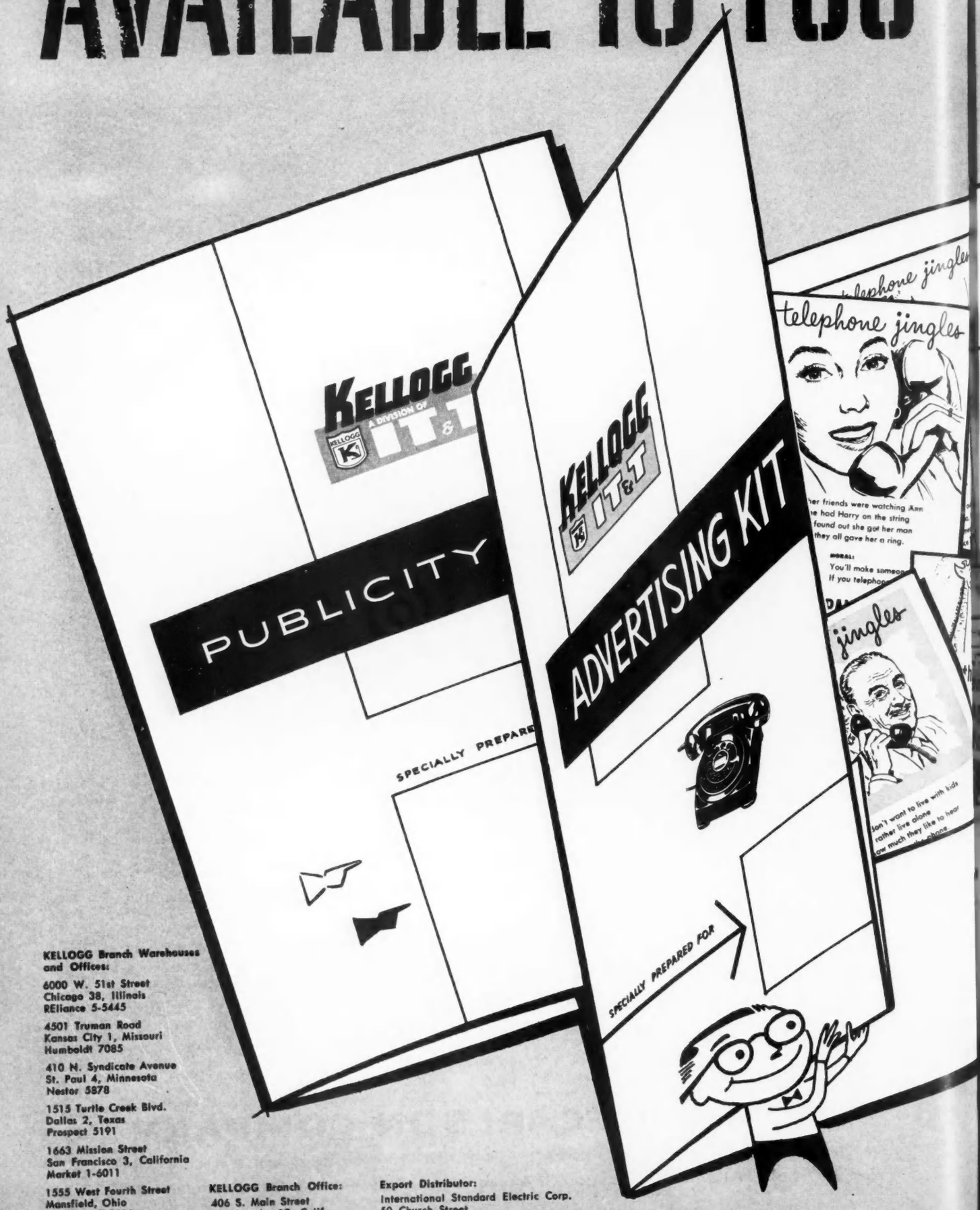
XY

**STROMBERG-CARLSON COMPANY**

A DIVISION OF GENERAL DYNAMICS CORPORATION

Sales Offices: Atlanta 3, Chicago 6, Kansas City 8, Rochester 3, San Francisco 3.

# AVAILABLE TO YOU

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# —Advertising and Publicity kits which show you how to

# BRING YOUR STORY TO YOUR CUSTOMERS

RADIO SCRIPT
PROGRAM:
LENGTH:
SPONSOR:
Sound Effect: Telephone ringing.
Announcer: I'll bet that's (your company name here) w
telephone jingle.
Sound Effect: Phone being taken off the carriage.
Announcer: Hello.
telephone jingles
Better than finding a nestful of eggs On Easter morning, is getting a call And hearing the voice of a faraway friend It's the happiest Easter surprise of them all.
MORAL: You'll make someone happy If you call on Easter day.
N EXTENSION PHONE?
BEDROOM...KITCHEN
PORCH...WORKSHOP
BASEMENT...GARAGE
LOW IN COST
HIGH IN CONVENIENCE
Saves time, steps and effort
ORDER YOURS TODAY
When Alice Newcome came to town
She hardly knew a soul to speak to.
Friendly folks have called her up,
She feels at home, in just a week too!
MORAL: You'll make someone happy If you telephone today.
YOUR COMPANY NAME HERE
NY NAME HERE

Many K500 telephone customers have asked us questions about methods of promotion and public relations for independent telephone companies. We now have a complete answer to these questions . . . a publicity kit and an advertising kit.

The publicity kit contains a variety of sample publicity releases and suggestions for preparing publicity and presenting it to editors.

The advertising kit includes tailor-made material for newspapers, radio and direct mail.

For your Kits . . . write the Kellogg Sales Office or ask your Kellogg Sales Representative.

KELLOGG
A DIVISION OF I T & T

**Kellogg Switchboard and Supply Company**
A Division of International Telephone and Telegraph Corporation
Sales Offices: 79 West Monroe Street, Chicago 3, Illinois

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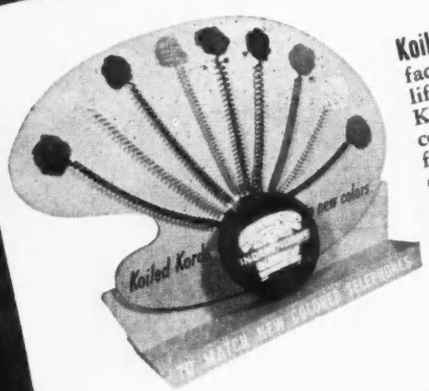
Please send me the kits which I have checked below:
Publicity Kit ☐ Advertising Kit ☐
Name_____
Firm_____
Street_____
City_____ State_____

# *All-star cast of line supplies*

# *featured by* KELLOGG

**Cable Leak Detector** — Two models are illustrated. *Model at left is for high cables. Nozzles spray cable, air pressure from tanks causes air bubbles clearly seen from ground. S & G MFG. CORP.

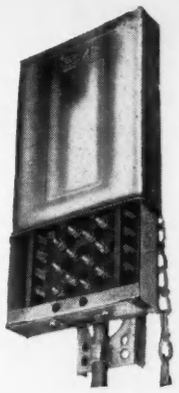


**Koiled Kords** Customer satisfaction and long service life is assured with Koiled Kords retractile telephone cords. Black cords available for replacement. Black and colors available for use on all new equipment. Made by KOILED KORDS, INC.

**Long Service Life and Low Plant Costs** go hand-in-hand with the installation of ENDURPRENE — The Neoprene Drop Wire available in Copperweld and Bronze. This flexible and easy to handle wire is made by GENERAL INSULATED WIRE WORKS, INC.

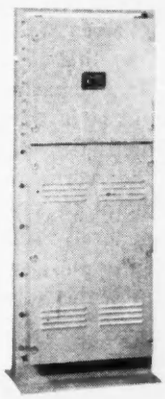
**Outstanding Battery Performance** is yours when you choose Gould Plante Batteries. Thick, grooved, pure lead positive plates give many years of trouble-free service! Made by GOULD-NATIONAL BATTERIES, INC., the finest money can buy.

**The Type XB Unprotected Cable Terminal** features a Bakelite faceplate and insulating fanning strip molded in one piece, with Everdur studs positioned for easy wiring. Available in 6, 11, 16 and 26 pair size, with or without cable stub. COOK ELECTRIC COMPANY.



**Versatile Plastic Screw Anchor** meets needs of telephone industry. For use in all materials from plasterboard to concrete, indoors and out. Outstanding bonding and fusion action. No special tools required. Savings up to 70%. HOLUB INDUSTRIES, INC.

**H-5 Subcycle for Harmonic Ringing Frequencies.** Produces all frequencies in harmonic series, 16-2/3, 25, 33-1/3, 50 and 66-2/3 cycles. Ringing frequencies locked to AC line frequency. Maintenance-free operation. LORAIN PRODUCTS CORPORATION.



**Peak Performance at Lowest Cost!** Get better voice and high frequency transmission with COPPERWELD STEEL CO.'s Line Wire. It's non-rusting, light in weight, easy to string. Permits safer long spans with savings in initial construction and upkeep.

Everything that Kellogg ships is a star in its field. Each item has passed a rigid "screen test" and proved that it can perform well under the most difficult conditions.

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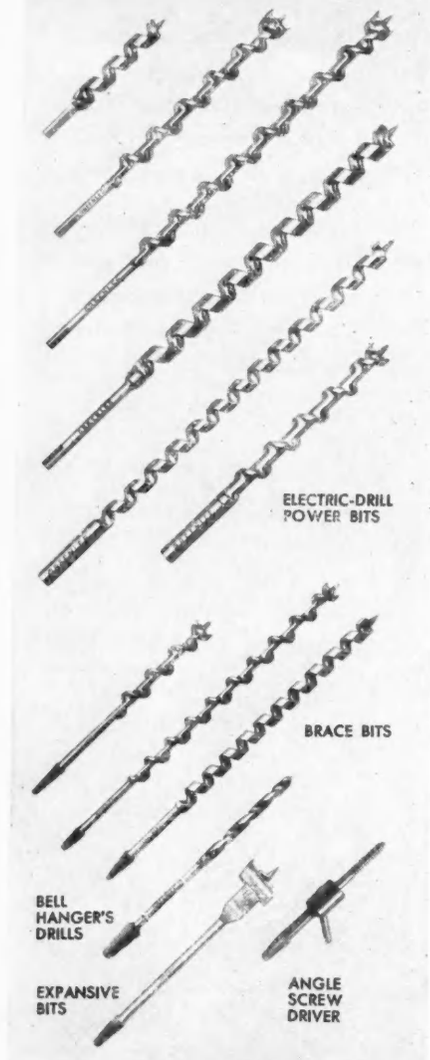
for pole, crossarm, and timber work . . .




TOOLS FOR CRAFTSMEN

GREENLEE

Whether you need to bore deep or shallow holes, small or large, there is a GREENLEE bit, drill, or auger for the job! Various lengths and styles for electric drill or hand-brace use. All of highest quality materials and correct design for easy boring, clean cutting, and long life under hard usage. Stocked by leading telephone supply distributors . . . see yours or write direct for literature.

**Greenlee Tool Co., 2002 Columbia Ave., Rockford, Ill.**

## ACROSS THE EDITOR'S DESK

### Homer A. Thompson

GOOD NEWS comes in bunches. While we were reading the January issue of "Nebraska on the March," a monthly issued by a division of the state government, we noticed an article on the telephone that featured the Cuming County Independent Telephone Company of Wisner and Beemer, in northeast Nebraska. The article featured a picture of the manager *Homer A. Thompson* and *James L. Morrison*, sec. treas. of the Nebraska Telephone Association. It lauded the work and enterprise of Mr. Thompson and the telephone company and Mr. Morrison added to the article with a very nice statement regarding the Cuming County Independent Telephone Company.

Added to all these remarks is a notice we received as this is being typed — Homer D. Thompson has just been made president of the company in addition to his title of general manager. In the words of the article "It's only literal to say that Thompson is the general manager; he manages everything in general." Homer was president of the Nebraska association in 1953.

■ ■ ■

### Ben Schweitzer

BEN C. SCHWEITZER, general commercial manager of the Illinois Telephone Co., Bloomington, is now on leave of absence to accept a position of consultant to the Taiwan (Chinese for Formosa) Telephone Co.

On Feb. 16 Mr. and Mrs. Schweitzer left Detroit for Formosa by plane. The assignment will take from six months to a year. He will work for the J. G. White Engineering Corp., New York, which was employed by the U. S. State Department and the Nationalist Chinese government through the International Co-operation Administration.

Formosa has a population of 10 million with about 2 telephones per 100 population compared to about 32 in the United States.

Ben is well known in Independent telephone circles from his many years of active service to the industry in responsible positions. He has been active in state telephone association responsibilities throughout his distinguished career.

■ ■ ■

### Busy Days Ahead

DONALD C. POWER, president of the General Telephone Corp., New York. made national news in late January with his statement to the newspapers and Associated Press that General would spend $500,000,000 on new equipment and expansion during the next three years. He also stated in the same news release the company expects to gain 500,000 telephones through internal growth during the same period. This statement is important to telephone industry executives of the United States, as the General Telephone Corp. in announcing these tremendous plans shows its faith in the future of our country.

■ ■ ■

### Carl D. Brorein, Jr.

SEEMS LIKE an accomplishment of the Brorein family of Tampa, Fla. is getting to be the usual instead of the unusual. The Tampa Jaycees have named *Carl D. Brorein Jr.* as Tampa's Outstanding Young Man of 1955. The presentation was made in January at a dinner honoring all past winners of the Jaycees Distinguished Service Award. Carl, besides his executive duties with the Peninsular Telephone Co., finds time to attend to many civic duties of his home city.

At the presentation it was stated "The award was made because of Brorein's service to the community. He has been extremely active in civic work during 1955.

# Lower installation costs with Copperweld LINE WIRE

Many companies have found that it costs less to install Copperweld* Line Wire than any other type. It's light in weight, smooth, easy to handle and economical to string, even on the longest spans. Next time you order line wire, specify "Copperweld." You'll find it pays!

*TWO POPULAR SIZES*

*.104"-40 High Strength for toll lines and long subscriber loops.*

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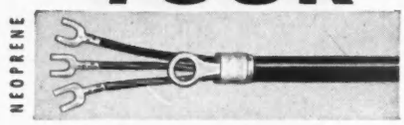
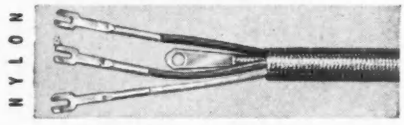
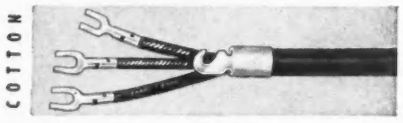



BEST




BUY!




***Are you familiar with the features of these fine cords?***

**NEOPRENE** covered cords are a highly serviceable cord, extensively used in a wide variety of services. They are moisture and grease proof . . . easy to keep clean.

**NYLON** covered cords are a relatively new development in telephone cords. Their fine smooth texture makes them the preferred cords for switchboard use. They give long service. Preferred by operators because of their fast, easy handling.

**COTTON** cords are in standard use everywhere. Their fine woven wrap makes them very serviceable for all around purposes.

Take your choice—Neoprene, Nylon or Cotton. They're all high quality cords made in accordance with Runzel high standard of quality. We carry a large stock of cords for every purpose.

***Our geographical location means QUICK SERVICE.***

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**Cord and Wire Co.**
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# Thoughts for Today

Collected by DICK ALLEN

**Reverses**

Even the best of men get knocked down many times in a lifetime. Occasional knocks aren't anything to be afraid of. In fact, they make the game of life interesting; they are the hazards and bunkers and sand-traps that force us to keep our mind on the game and play our best.—CLINTON E. BERNARD.

* * *

**Thinkers**

We may divide thinkers into those who think for themselves and those who think for others. The latter are the rule and the former the exception. The first are original thinkers in a double sense and egoists in the noblest meaning of the word. It is from them only that the world learns wisdom. For only the light which we have kindled in ourselves can illuminate the way for others—SCHOPENHAUER.

* * *

**Restrictions**

The idea of imposing restrictions on a free economy to assure freedom of competition is like breaking a man's leg to make him run faster.—MORRIS R. SAYRE.

* * *

**Security**

There must be something wrong with the thinking of young folks when, seeking employment, they are more concerned over "security" than over opportunity. In *our* book, the principle of private enterprise is our greatest security. The businessman who pays wages year after year gives us our greatest security. If we eliminate him, no government bureau or vote-hungry politician is going to give it to us.—H. C. DIEFENBACH.

* * *

**The "Real Need"**

We hear a great deal these days about the importance of education to our country and our industry's future. The need for technical and scientific education is obvious, but ever more important is this training for leadership. This is the best reason I know for our industry to help all it can in the field of education. — GENERAL J. E. HULL, USA (RET.)

* * *

**"Not a Treadmill"**

Life is not a treadmill, a jail, or a place of punishment, but a beautiful and fascinating field of endeavor and enterprise, with inspiring horizons of newer and greater fields beckoning ever onward. Work, opportunity, effort, and service are blessings to enrich your life and make it truly worth living. Blessed is the man who does his work joyfully.—GRENVILLE KLEISER.

* * *

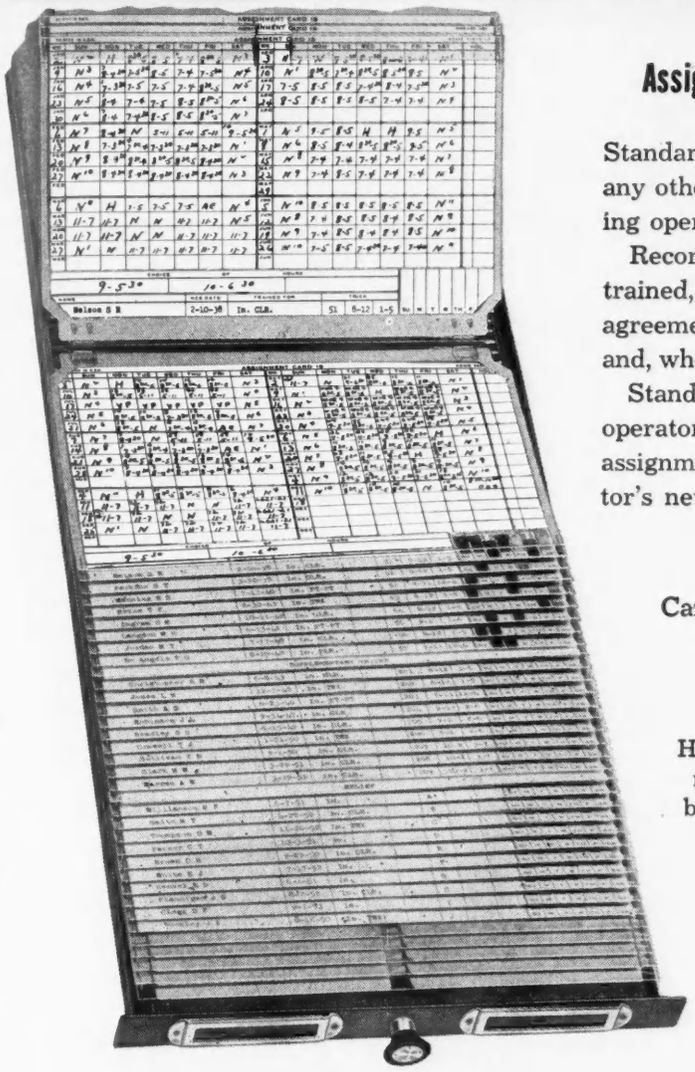
**Work**

Extend pity to no man because he has to work. If he is worth his salt, he will work. I envy the man who has work worth doing and does it well. There never has been devised, and there never will be devised, any law which will enable a man to succeed save by the exercise of those qualities which have always been the prerequisites of success, the qualities of hard work, of keen intelligence, of unflinching will.—THEODORE ROOSEVELT.

ACME VISIBLE

# FORCE ADJUSTMENT RECORD

## Visible Card Method for Assignment of Operators' Tours of Duty and Days Off



Standard for the telephone industry and used more than any other method or combination of methods for assigning operators' tours of duty and days off.

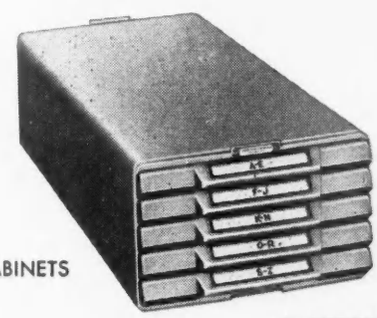
Record shows the assignments for which an operator is trained, personal preferences, seniority and local working agreements. Holiday and night tours are fairly assigned and, when possible, in accordance with individual wishes.

Standardization of the System facilitates transfer of operators from one district to another with up to date assignment history, fitting into the system of the operator's new district.

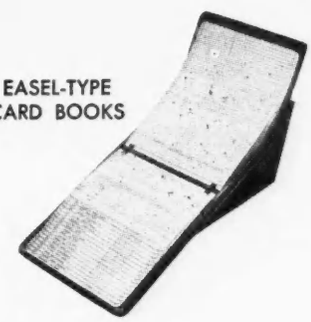
ACME VISIBLE

Card Books, Easel-Type Card Books, and Cabinets are standard for the record—selection depending upon size of force, office procedure, etc.

Available with standard Kraft Acme Permanently Hinged Vision Pocket (illustrated); the previous six months assignments of an operator are placed in the back of the pocket facing the current assignment card. Acme All Acetate Permanently Hinged Pockets also available; they offer the added feature of permitting a full year's weekly assignments to be placed on one card, the previous six month's history being visible through the acetate when the pocket is turned. Standard Force Adjustment forms and Acme Visible Lock-In Train Signals have been specifically developed for this system.



CABINETS



EASEL-TYPE CARD BOOKS

CARD BOOKS

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KIND OF RECORD

Company..... Attention.....

Address.....

City..... Zone..... State.....

# WASHINGTON NEWSLETTER

## ANTI-TRUST SUIT ENDS

***Some months may elapse*** before the full impact of the consent decree entered into by the Justice Department and the Bell System, ending the 7-year-old antitrust suit against the American Tel. & Tel. Co. and the Western Electric Co., can be assessed. Immediate reaction of some observers was that while the terms of the decree were described as "stringent" by AT&T President *Cleo F. Craig*, the important relationships of the Bell System, and its position as the major entity in common carrier communications, had been preserved.

***The decree provides*** that the Bell System will continue to provide all common carrier communications services regulated by federal and state authorities, and leaves undisturbed the extensive work done for the federal government by Western Electric and the Bell Telephone Laboratories. In the suit, filed in January, 1949, Justice had sought divorcement of AT&T's interest in Western Electric; disposal by Western of its 50% interest in the Bell Laboratories; and dissolution of Western and division of that company into three separate organizations. Under the decree, Western will continue to manufacture equipment the Bell System uses in furnishing communications services subject to regulation, and perform its other functions for the System, such as purchasing, distributing, and installing.

***The Bell System companies,*** under the decree, are required to discontinue the business of leasing and maintaining facilities for private communications systems for customers other than the federal government, except where the charges are now under, or become, subject to regulation. Existing lease-maintenance arrangements, or those entered into within 45 days after entry of the decree, may be continued for five years, however. Terms of the decree provide that AT&T and its operating subsidiaries shall not engage in unregulated activities, but it does not prevent the Bell System from: manufacturing any equipment or providing any services to the federal government; experimental work; furnishing circuits to other communications carriers; directory advertising; advice or assistance to other communications carriers; or activities incidental to the furnishing by the Bell System of regulated communications services.

***Common carrier communications services,*** provision of which by the Bell System is specifically endorsed in the consent decree, are defined as: "communications services and facilities, other than message telegram service, the charges for which are subject to public regulation under the Communications Act of 1934, or any amendment thereof, or would be subject to such regulation thereunder if such a service or facility were furnished in interstate commerce; and shall also include any communications service or facility, other than message telegram service, the charges for which are or become subject to regulation under existing or future laws of any state, territory, or the District of Columbia; but only in the jurisdiction or jurisdictions in which the charges for such service or facility are subject to regulation."

***Under the definitions,*** message telegram service is the "electrical transmission by a common carrier of a message presented to it at one of its public offices in written form or, if presented orally, reduced to written form by the carrier and delivered by the carrier to the addressee in written form or, if orally, by a reading of the written message by the carrier."

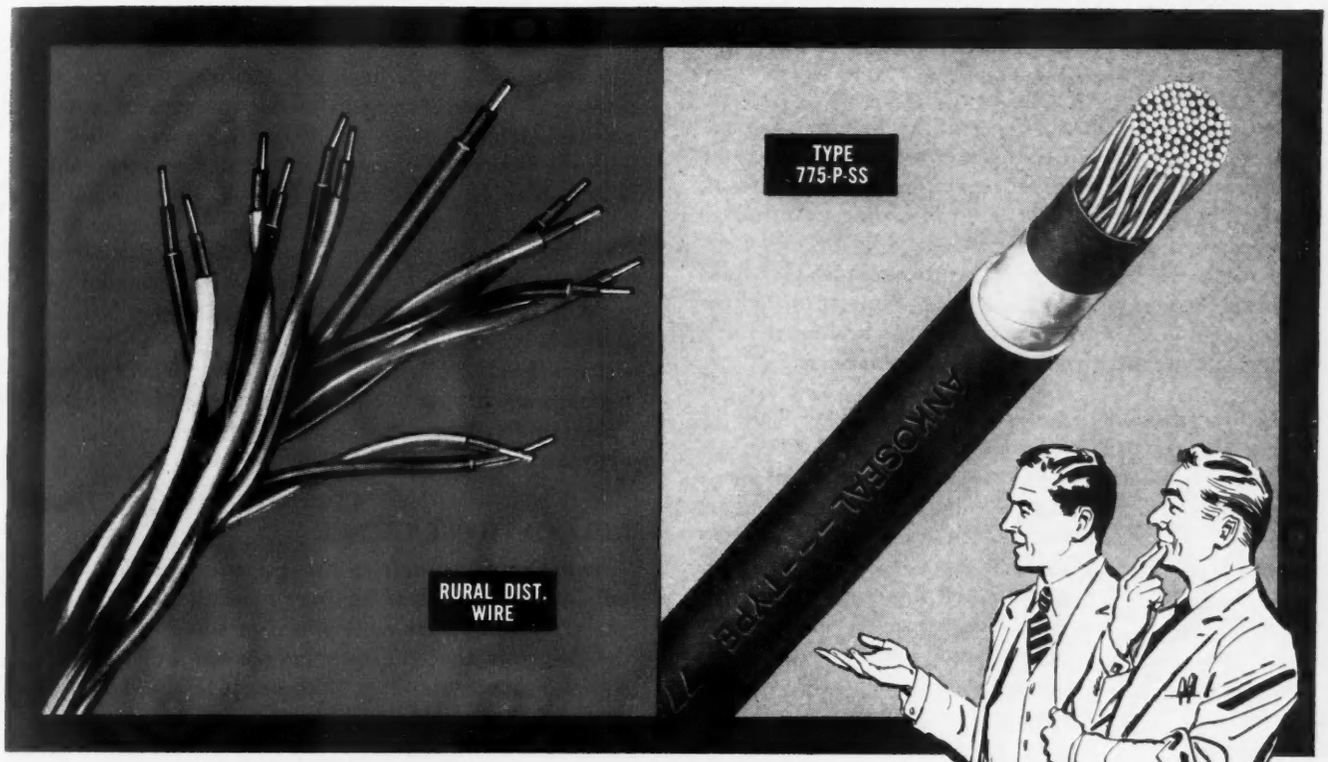
***Taking up the relationship of*** Western Electric prices to Bell System operating company telephone rates, the decree provides that "Western is ordered and directed to maintain cost accounting methods that conform with such accounting principles as may be generally accepted and that afford a valid basis . . . for determining the cost to Western of equipment sold to AT&T and Bell operating companies for use by them in furnishing common carrier communications services."

***Another provision*** is that "The defendants are each enjoined and restrained from making, performing, or enforcing, directly or indirectly, any contract or agreement with any Independent operating telephone company under which such company is required to buy any equipment from them (but this shall not apply to any specific purchase order or to any specific contract for the purchase of operating plant), or with any purchaser to limit, fix, or control the prices to be charged by such purchaser on the resale of any equipment."

## SEPARATIONS PROCEDURES

***In view of the need for uniformity*** in telephone separations procedures and the decision by the Federal

# How do you choose self-supporting cable?

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# WASHINGTON NEWSLETTER

*(Concluded From Page 20)*

Communications Commission and the National Association of Railroad & Utilities Commissioners that the "modified Phoenix plan" of separations merits approval, the Bell System companies "are proceeding to introduce the proposed procedure effective July 1, 1956." Objective of the revised separations procedure is to reduce interstate-intrastate telephone rate disparities by the transfer of book cost, expenses, and revenue requirements to interstate from intrastate operations.

***As of June*, 1954,** the plan would have had the effect of transferring approximately $35,000,000 of annual Bell System revenue requirements to interstate operations from intrastate, by transfer of about $150,000,000 of annual Bell System revenue requirements to interstate operations from intrastate, by transfer of about $150,000,000 in toll line plant book costs and $20,000,000 in operating expenses to interstate from intrastate. Although no study has been made since the one based on June, 1954 plan, it is anticipated that a new study now to be made will show substantial increases in the totals, because of the tremendous continued program of construction of interstate telephone facilities since the previous study. Size and effect of the transfers, of course, varies widely from state to state.

***A great volume of detailed preparation*** must precede the changeover, AT&T pointed out in a letter responding to the FCC, and the earliest date at which the Bell System companies can begin applying the new method to its division of interstate revenue contracts is July 1.

***To AT&T, the FCC commented*** that "In taking this action, the Commission was mindful of the fact that with the effectuation of the modified Phoenix plan and the incorporation thereof in the division of interstate revenue contracts of the Bell System, the ratio of the Bell System's operating results from the services subject to the division of interstate revenue contracts to the investment assigned those services will be reduced. In this regard, we were also cognizant of the position of the Bell System as stated in the report of the Special Telephone Committee to the 1954 convention of the NARUC that the Bell System will not accept the revised procedures unless the condition is met 'that the modified method will not be placed in effect until interstate rates are adjusted to care of the increase in revenue requirements' . . . This (putting the plan into effect) will make it possible, in each telephone rate-making jurisdiction, to observe the effects of the plan on the revenue requirements applicable to telephone service subject to each of those jurisdictions and thereby provide a more practicable and reliable basis upon which both the regulatory commission and the telephone company may determine the type of rate action, if any, that may be required."

***AT&T said, in its response*** to the Commission, "You will recall that low interstate earnings were a problem in 1953 and 1954 despite the Oct. 1, 1953, rate adjustment. In 1955, earnings improved with the increased toll volumes, resulting from the new high level of business activity. Only because of these increased toll volumes in 1955 have the earnings over the last three-year period averaged 'within the area of reasonableness' referred to by the Commission in connection with the Oct. 1, 1953, rate adjustment. Since the end of World War II, the demand for long-distance service has made it necessary for the Bell System companies to more than double their facilities devoted to this service. We are now undertaking the largest construction program in our history to increase long-distance facilities, and it is imperative that earnings be above a mere subsistence level, particularly during the periods of high business activity, to enable us to carry on this program. Furthermore, long-distance revenues and earnings are extremely volatile and fluctuate greatly."

## RELOCATION EXPENSE

***Another approach to the question*** of payment to public utilities of their highway relocation expenses, apparently meeting the contentions of some opponents of the principle that the question should be left to the states, was contained in the new federal-aid highway measure offered by Rep. George H. Fallon (D., Md.), Chairman of the House Public Works roads subcommittee.

***A highway construction bill*** was passed last year by the Senate, with a provision for payment of 50% of relocation costs from federal funds. Rep. Fallon's bill provides for a different method of relocation payments, with federal funds to be used to reimburse states which pay for relocation costs, up to the full amount expended by the utility.

***Section 11 of the bill,*** relating to relocation payments, is as follows: "(a) Subject to the conditions contained in this section, whenever a state shall pay for the cost of relocation of utility facilities necessitated by the construction of a project on the federal-aid primary or secondary systems or on the national system, including extensions thereto within urban areas, federal funds may be used to reimburse the state for such cost in the proportion as federal funds are expended on the project; (b) For the purposes of this section, the term 'utility' shall include, publicly, privately, and cooperatively owned utilities; (c) For the purposes of this section, the term 'cost of relocation' shall include the entire amount paid by such utility properly attributable to such relocation after deducting therefrom any increase in the value of the new facility and any salvage value derived from the old facility."

***It was clear*** that Rep. Fallon's measure is designed to minimize controversy in a number of areas, including the utility relocation feature. His bill calls for federal grants of $24,825,000,000 over the next 13 years to modernize and expand a 40,000-mile system of interstate highways.—***By the editors of "Telecommunications Reports."***

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2. Neotel Copperweld Drop Wire (Tw. pr.)
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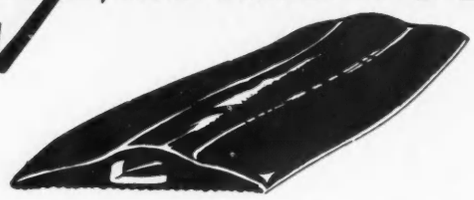
# FLEXIDUCT?



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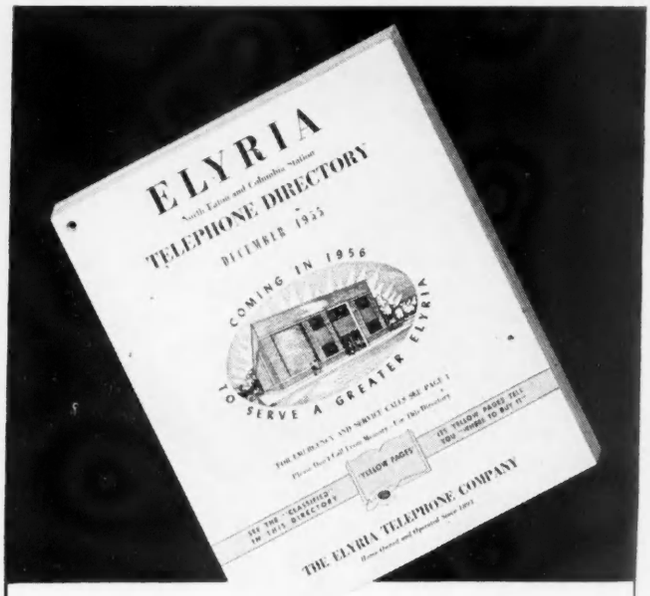


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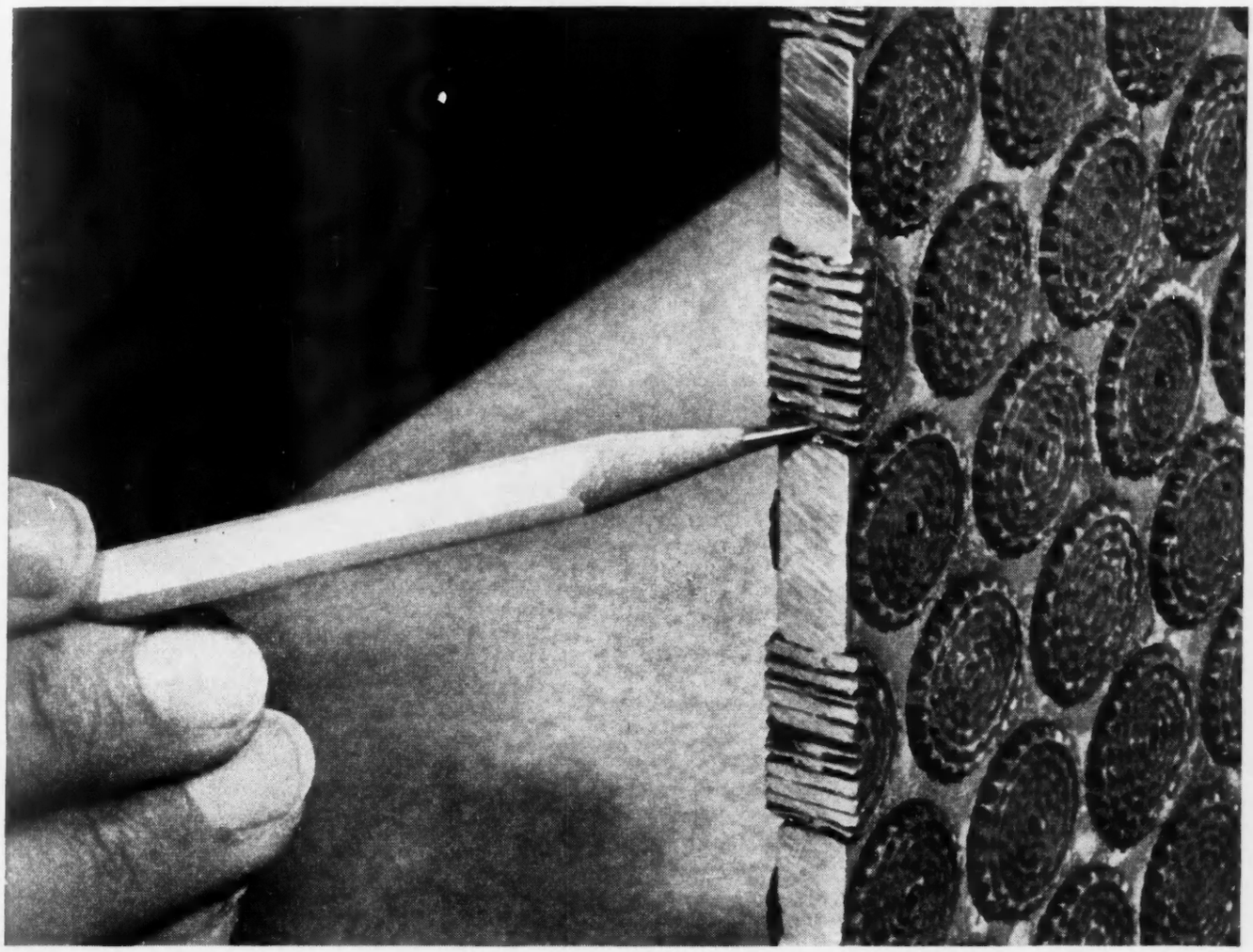
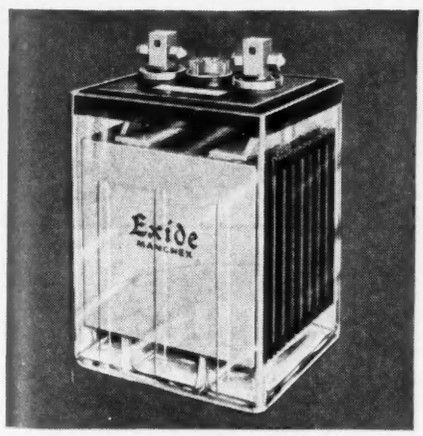
# EXIDE-MANCHEX BATTERIES

## Continuous and emergency power for telephone systems



## Spiral buttons act like shelves for oxide—prolong battery life




**TELEPHONE BATTERY.** Exide-Manchex Batteries are available in a wide range of capacities from 40 to 960 ampere hours. Compact construction saves space and weight. Flat cover easy to clean. Write for Bulletin No. 4852.

In ordinary batteries, the active material clings to the vertical surfaces of the positive plate—forever fighting the forces of gravity and turbulence. Let it loosen its grip and down it comes. And there goes battery life.

Not so with Exide-Manchex Batteries. Active material is built up between the spiral layers of these unique lead buttons that act like tiny shelves. There it rests, supported against gravity and electrolyte turbulence. And there it stays for years and years and years.

This simple design principle is one of the several tangible reasons for the long, useful life of Exide-Manchex Batteries. Used in a wide variety of floating service applications, these batteries have earned a reputation for long, dependable service unsurpassed in the entire world. And this method of construction is available only in Exide-Manchex Batteries.

When you order batteries for applications where you need dependable performance and long, useful life, or when you buy equipment using this kind of battery, be sure to specify Exide-Manchex Batteries. Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 2, Pennsylvania.

**Exide®**

# How Raytheon helps keep your subscribers happy

Because Raytheon's telephone power supplies provide full, filtered, noise-free power, your subscribers' telephones operate at their best.

The unfailing year in and year out service of these dependable units safeguards customer good will.

Important, too, Raytheon reliability minimizes your maintenance problems and reduces your costs.

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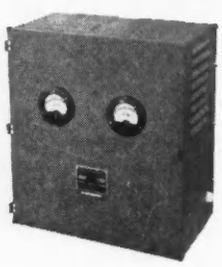
BATTERY CHARGERS

High efficiency —long life From 1 Amp. to 100 Amps. 6-48 Volts



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**Equipment Marketing Division, Waltham 54, Mass.**

RAYTHEON

*Excellence in Electronics*

# MANAGEMENT NEWSLETTER

## EMPLOYE TRAINING

***Interest in employe-training*** programs is increasing with more companies realizing training programs insure an adequate skilled labor supply. Companies with established training programs add up the dividends this way: (1) A better product from better workmanship; (2) lower unit cost because of properly trained workers; (3) greater employe stability because of greater worker loyalty; and (4) a means for building future supervisors.

***There is plenty of help*** available for the management interested in learning how to establish an employe training program. As a start we recommend you write *Bureau of Apprenticeship, U. S. Dept. of Labor*, Washington 25, D. C. and request free copies of (1) *Setting Up An Apprenticeship Program;* (2) *The National Apprenticeship Program;* (3) *Your Skill Improvement Program;* and (4) *Evaluating Apprentices.*

## YOUR BANKER

***Business Advisors*** say many owners and managers of small businesses overlook one of their best sources of management help — their commercial bankers. *E. I. H. Bennett*, vice pres., Peoples First National Bank & Trust Co., Pittsburgh, Pa., stated recently that the banker's interest is strongly in favor of helping small firms to prosper and grow."

***"For this reason,"*** he said, "they (bankers) offer a good deal of practical management assistance to their customers on a free basis. In addition to money-lending activities, many banks offer — financial management assistance, trust information, help in finding and placing management personnel, guidance on credit policies, aid with record keeping and reporting techniques, and analyses of current and future business conditions . . ."

***If you want to learn*** more about some of the major forms of banker's assistance write *Small Business Administration*, Washington, 25, D. C., and request free copy of Management Aid titled "Using Your Banker's Advisory Services."

## "THE OLDER WORKER"

***Faced with fact*** that job problem of the older worker is growing Secretary of Labor *James P. Mitchell* last month announced that 14 private pension experts have agreed to help the department seek workable answers to the problem. The group will serve as a committee to determine the extent to which fears of higher pension cost account for employer reluctance to hire older people. Mr. Mitchell said he's received many indications that workers past 40 find age a barrier in seeking employment.

***Charles Odell*** of the Bureau of Labor Statistics, heads up a special Labor Department group studying the problems of older workers. The Pension Advisory Committee will investigate only one aspect of this problem.

## CUSTOMER EDUCATION

***How many of your business subscribers*** know that the cost of a 150-word business letter is $1.38? The Correspondence Improvement Division of the Kemper Insurance Companies says $1.38 is the actual cost when the time of the dictator and the stenographer, overhead, postage, printing, paper, envelopes, wear and tear on equipment, and other miscellaneous items are figured.

***The Kemper survey points up*** fact that when comparing the rates for a 3-minute call of 450 words with the average cost of a 150-word business letter the advantages of telephoning instead of writing are apparent. The 450-word count for a 3-minute call is based on telephone company study which showed that an average of 150 words per minute are spoken in a normal conversation.

## PROBLEM HANDLED

***Many public relations problems*** are caused by lack of understanding on the part of the ultimate consumer of the goods or services in question. This proved to be the case shortly after the American Tel. & Tel. Co. introduced its new electronic "unit message" billing system.

***To help solve the public relations problem*** and to explain clearly and understandably the purpose, function and operation of the new system, AT&T called on John Sutherland Productions. Result: A new 17-minute Technicolor animation film, *"Behind Your*

# MANAGEMENT NEWSLETTER

*(Concluded From Page 27)*

*Telephone Bill,*" which is producing good results despite the short time since its initial release.

***AT&T executives had discovered*** that a number of telephone subscribers in various parts of the country were sure that with the new electronic unit-message billing, they might be charged for incorrect or uncompleted calls, and have no way to check such charges against their monthly bills. "Behind Your Telephone Bill" lays such fears at rest by explaining, with engaging good humor, how the new system actually provides better service to the subscriber at the lowest possible cost.

## EASING THE TAX BURDEN

***Management consultants are recommending*** profit-sharing plans as a means of easing the tax burden for all individuals. This is especially applicable to owners of smaller enterprises. Benefits accruing from a profit-sharing plan that qualifies under the provisions of the Internal Revenue Code include: immediate deduction of contributions to the plan by the employer; postponement of taxability to the employe to time of receipt; tax exemption of income resulting from investment of the assets of the trust; accumulation of sizable sum of cash by the employe after a number of years, and participation in capitalism by everyone involved in the plan.

***Unlike a pension plan,*** which is intended primarily to provide systematically for the payment of retirement benefits to employes, and requires contributions in bad as well as in good years, the profit-sharing plan is conceived as an incentive to create work at increased efficiency, according to Julius Perler, Los Angeles certified public accountant.

***Generally speaking he*** asserts in the February *Journal of Accountancy*, the small, closely held corporation will find it best to choose the profit-sharing plan. Contributions must be made to a trust established in accordance with the laws of the State involved. It must be an irrevocable trust and for exclusive benefit of employes or their beneficiaries. An advisory committee of at least three, appointed by the company should administer the plan and determine all questions that arise.

## SIGHTS LIFTED

***The National*** Association of Home Builders at its convention in Chicago last month came out with the most optimistic estimate yet made on 1956 home construction. It said 100,000 would be added to the estimate 1,320,000 built in 1956.

***Senator John J. Sparkman*** (Dem., Ala.) warned of a falling ratio of homes costing under $12,000. He said that in 1954 half the number of new homes cost under the $12,000 figure while in 1955 only 35 per cent were within that price limit. Senator Sparkman also said that the "tight money market" might continue well into this year and that the mortgage market was "unusually sensitive" to Federal Reserve restrictive credit efforts, though such efforts were intended to operate equitably.

***The Senator,*** who is chairman of the Senate subcommittee on housing, said he felt the industry could build and the economy absorb 1½ million new homes yearly but that to achieve such an aim a new market-pensions fund — would have to be tapped for money.

***These pensions and trust funds,*** he added, are growing at a rate of nearly $2 billion yearly and Government-secured mortgages would be at least as attractive to the funds as some of their present investments.

## WORTH WRITING FOR

***Write L. S. White,*** editor "Better Living," E. I. Du Pont de Nemours & Co., Wilmington, Del., for copy of his Jan.-Feb., '56, issue. Issue contains excellent, illustrated article titled "Labor Shortage Ahead." Article should be of value to all long-range planners.

***December, '55, issue*** of "*The Automatic Electric Technical Journal*" features article on "The Los Angeles Extended Dialing Area Network," by *Gordon F. Orelli & Beverly H. Prayor*. Write *Bruce Quisenberry*, Automatic Electric Co., 1033 W. Van Buren St., Chicago, for your copy.

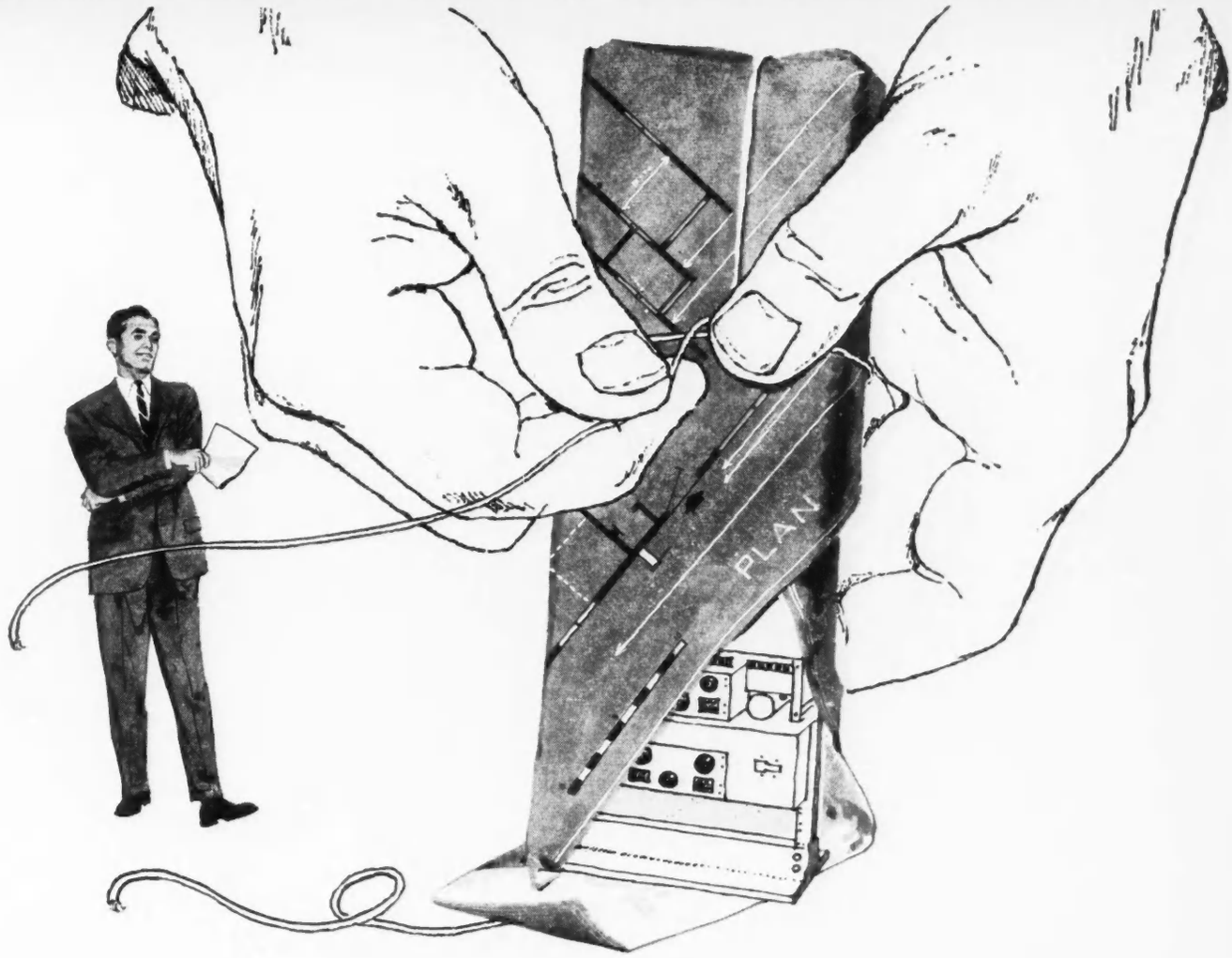
***New booklet*** from General Cable Corp. describes General Cable's Rural Distribution Wires. The 32-page booklet is packed with hand-book information for the telephone engineer and crew foreman. Among the subjects discussed and illustrated are, stringing sags and tensions for medium, light and heavy loading districts. The booklet also features a reprint of REA's Construction & Engineering Manual on "Application of Multi-Pair Distribution Wire." Copy of the new booklet may be obtained by writing General Cable Corp., 420 Lexington Ave., New York, (Dept. T E M) N. Y.

***Current bulletin*** from Occupational Health Institute, 6 East 39th St., New York 16, is packed with data on industrial medical services and employe health care. Request bulletin titled — "Health & Employer/ee Efficiency."

## MANAGEMENT BOOK SHELF

***Measuring Business Changes:*** Richard M. Snyder, John Wiley & Sons, 440 4th Ave., Dept. TE&M, New York, 1955 382 pp., $7.95. This handbook tells something about more than 50 significant business indicators used by top management. What they are, what they mean, what they don't mean, where to get the latest information, where to get statistical series running back for years and cost of some statistical publications are all covered. This is not a book to peruse from cover to cover. But it will be useful to the busy executive, in a hurry to get the answers, who doesn't have time to take courses in statistical research.

**AUTOMATIC ELECTRIC — LEADERS IN CARRIER COMMUNICATION — LENKURT**




# Now you can buy your long-distance and trunk circuits "BY THE PACKAGE"

Here's a new service—brought to you by two of the leading suppliers of communications equipment. Combining Lenkurt's "EF&I" (Engineer, Furnish, and Install) service with Automatic Electric "Follow-Thru Engineering", it makes it easy for you to have the carrier or microwave equipment you need, without overloading your engineering and installation staff. This new "package plan" is broad enough to handle complete projects, yet flexible enough to provide economically just the services you need.

Through this "package plan" you have the opportunity to contract for any or all of these services:

**1. Specific recommendations.** Experienced project engineers study your problems and draw up an economical, workable plan to meet present and future requirements. Then they make detailed equipment recommendations—*telling you why.*

**2. Detailed specifications.** Our engineers provide all the specifications you need to order your equipment.

**3. Expert installation.** Thoroughly trained specialists handle all the details of the installation, and turn the system over to you, ready for service, on the date promised.

**4. Office records.** You are furnished, for record purposes, the engineering details showing how this system was incorporated into your plant. You will receive field surveys, floor plans, cable and power connecting charts—all the records you'll need for future use.

**5. Staff training.** You are provided detailed equipment bulletins and line-up and operating instructions for your personnel. Engineers assigned to your installation will train your men right on the job, giving them the basic information necessary to understand and service the equipment.

**6. Follow-up counsel.** Even after your system is in operation, this same helpful service continues. When assistance on rearrangements or expansion is needed—or any time you can profit from experienced counsel—this service is available to you.

For complete details on how this "package plan" service can help you to quickly and easily get the long-distance and trunk circuits you want, *write:* Automatic Electric Sales Corporation, 1033 West Van Buren Street (HAymarket 1-4300), Chicago 7, Illinois.

AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

## Better Rural 'Phones Coming, Electrical Engineers Hear

CARRIER OR HIGH FREQUENCY current, long used on long distance trunks of the Bell System, soon will be extended to rural 'phones, it was reported Feb. 3 at the Winter General Meeting of the American Institute of Electrical Engineers in the Hotel Statler, New York City.

The new P1 system was described at a wire communications session in five papers by engineers from the Bell Telephone Laboratories and the American Telephone & Telegraph Co. The authors were R. C. Boyd, E. K. Eberhart, F. J. Hallenbeck, E. H. Perkins, D. H. Smith and T. W. Thatcher, of Bell Labs., and J. D. Howard, A. T. & T.

Mr. Boyd said the P1 Carrier System has been used experimentally on rural lines at Americus, Ga., and "the results of these tests were encouraging enough to justify the development of the P1 carrier system for manufacture by the Western Electric Co. It is expected that the first channel terminals will be available to the Operating Companies in the Bell System in the second quarter, 1956. Repeaters will follow probably during the fourth quarter, 1956."

In addition to providing economical methods for serving rural subscribers on new or existing lines, the system "may also be used to give existing rural subscribers a higher grade of service, e.g., changing the service from eight-party semiselective to four-party full selective ringing. In addition, the system will make it possible to effectively extend the ringing range of existing offices without adding other expensive switching equipment.

"In addition to use as a rural subscriber system, the P1 carrier system shows promise of providing a transmission facility for use on exchange area trunks. A new trunk signalling system is being developed for use in conjunction with the transmission portion of the P1 carrier system. It is expected that the trunk application of the P1 carrier will be available for Bell System use early in 1957."

## North Dakota Co-ops Buy Central Tel. Property

A JOINT ACQUISITION of all South Dakota telephone properties of the Central Telephone Co., Lincoln, Neb., makes possible six dial conversions, and extension and improvement of service to an estimated 3850 subscribers and potential subscribers in portions of 14 counties of South Dakota.

Of these exchanges, the Dakota Cooperative Telephone Co., Irene, S. D., now own the units at Parker, Chancellor, Lennox, and Worthing; the latter of which is presently dial. The Sanborn Telephone Cooperative will modernize the Woonsocket exchange, and the Midstate Telephone Co., Kimball, S. D., will rebuild the exchanges at Kimball and White Lake. The companies are utilizing loan funds from the Rural Electrification Administration.

The joint nature of the venture was by mutual agreement between all companies, and the acquired properties constitute nuclei for the organizations at Woonsocket and Kimball. The Irene company presently

**Participants in recent South Dakota property transfer are (l. to r.): — MAYNARD CHRISTENSEN, President, Dakota Cooperative Telephone Co.; H. A. HANSON, secretary-treasurer, Central Telephone Co.; ARTHUR GODFREY, president, Sanborn Telephone Cooperative; and H. D. BROWN, Midstate Telephone Company.—*(Scott Engineering Co. photo.)***

operates eight dial exchanges. The purchase price was not announced.

It is expected that construction will take place on all exchanges in 1956, and that the conversions will be made in late 1956, and 1957.

## Michigan Independent Ends 50 Years of Service

LAST MONTH the 50-year-old Watson Telephone Co., of Watson Corners, Mich., was absorbed by the Michigan Bell Telephone Co., and the Union Telephone Co., Owosso, Mich.

The little firm, which had its start in a blacksmith shop, had served a territory between the Union company at Allegan and the Bell system at Martin.

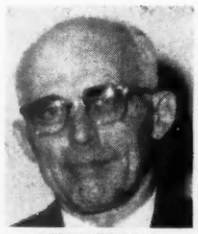
Original stockholders of the Watson system reportedly paid $15 a share, plus another $11 for each individual phone, and cut tamarack poles for their lines.

The Watson firm was organized in 1906.

A vote of stockholders last March resulted in plans for its dissolution for economic reasons .

## General of Ky. Switches to Division Type Operation

H. J. HUETHER, Jr., president, General Telephone Co. of Kentucky, has announced that the company has changed from a district type to a division type of operation. Concurrent with this change, Marston V.



SHEPHERD

WIBBELER

Shepherd, formerly district manager at Ashland, Ky., became Lexington division manager with headquarters at Lexington, Ky., and James F. Wibbeler, previously Ashland district plant supervisor, became Ashland division manager with headquarters at Ashland, Ky.

The Lexington Division will consist of the following exchanges, Lexington, Berea, Bryantsville, Hazard, Liberty, Lancaster, Midway, Nicholasville, Paint Lick, Versailles and Wilmore with a total of 49,345 stations. The Ashland Division will be made up of the following exchanges, Ashland, Catlettsburg, Russell, Morehead, Flemingsburg, Sharpsburg, Poplar Plains, Vanceburg, Owingsville, Grayson, Olive Hill and Greenup, with a total of 23,529 stations.

Shepherd began his telephone career with General Telephone Co. of Kentucky as Ashland Area commercial manager in September, 1948. He was appointed Ashland district manager in November, 1951, when the type of operation was changed from area to district.

Wibbeler started his telephone work with the company in September, 1946, as a combinationman and has progressed through the ranks to his present job.

David R. Noble, district manager at Morehead, assumed the position of Ashland division plant superintendent, on February 1. Mr. Noble is a veteran of 15 years of service with General Telephone Co. of Kentucky. He served 4½ years in the Army Air Force during World War II.

NOBLE

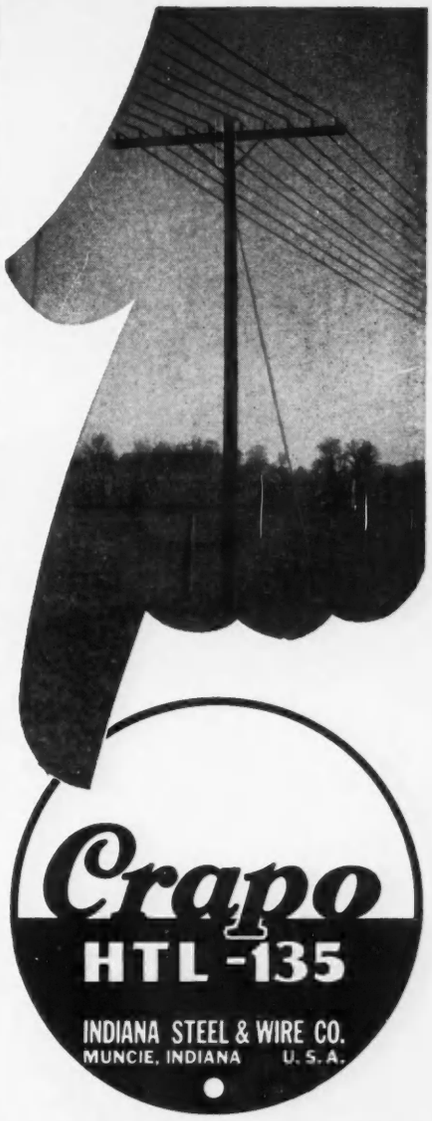
## Judge OK's Rate Boost for East Ascension, La.

LOUISIANA DISTRICT Judge Charles A. Holcombe has authorized the East Ascension, (La.) Telephone Co., Inc., to increase its rates, declaring null and void an earlier order from the Louisiana Public Service Commission prohibiting the raise.

Louisiana Commission hearings on the rate increase resulted in minor changes, but not enough, the telephone company claimed, to result in a 6½ per cent return rate which it wanted. The company added that the lower return was "Unreasonable and contrary to the public interest and will result in the confiscation of its property."

On Sept. 23, 1954, the commission permitted the company a small hike upward. On March 10, 1955, a rehearing was held and the commission allowed a further hike, but still not enough to satisfy the company.

The court held that the commission fixed the rates allowed solely on a comparative basis with other similar utilities, such as Southern Bell Telephone & Telegraph Co. Plaintiffs held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The rugged tensile strength of Crapo HTL-135 and its heavy galvanized coating provide dependable and economical service life on typical rural lines.

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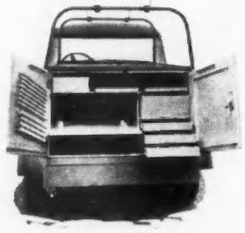
WITH EVERY QUALITY FEATURE FOR CONVENIENCE AND LONG SERVICE LIFE

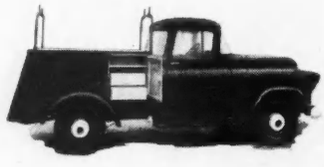
It's true; Stahl TMI-76 Telephone Service Bodies have the extra costs engineered OUT. Here is a body that has all the space you want, a body that is reinforced at EVERY point of strain, precision welded of auto body steel, yet COSTS YOU LESS!

Available with Ladder Racks and Rear Bumpers, in prime finish or painted to your order.

MADE BY STAHL . . . BUILDER OF QUALITY SERVICE BODIES . . . mounted on your chassis at our plant, or crated and shipped to you at new low shipping cost.

*Write for descriptive literature and complete specifications.*





TMI-76 . . . FIRST TOP QUALITY TELEPHONE SERVICE BODY AT A PRICE!

STAHL
METAL PRODUCTS, INC.

that the rates should have been fixed by taking as the rate base the amount of the "prudent investment" of the company in its gross plant and applied thereto a rate of 6 per cent less 5½ per cent on depreciation reserve," as the commission has consistently done since the Hope case.

The telephone company, which converted to the dial system July 26, 1953, serves customers in Ascension and Livingston Parishes.

## Ohio Association Names New Advertising Agency

COLUMBUS, OHIO — Appointment of Harry M. Miller, Inc., national advertising agency, Columbus, Ohio, to handle public relations and affiliated activities for the Ohio Independent Telephone Association has been announced by Daniel W. DeHayes, secretary-treasurer of the association.

Ohio Association members serve better than 95 percent of the Independent telephones in Ohio. The Ohio association, which is the oldest Independent telephone trade group in the United States, was organized in Columbus in 1895. It represents 114 member companies, who serve more than 675,000 subscribers in two-thirds of the land area of the state.

Douglas M. Berwick, account executive with the Miller agency, will administer this account.

## General of Calif. Reports Gain of 81,248 Telephones

DURING 1955 GENERAL TELEPHONE Co. of Calif. added more new telephones to its California exchanges than are now in service in the entire city of San Jose, Calif., Edwin M. Blakeslee, president of General Telephone, reported last month. With a total gain of 81,248 telephones, General set a new record for company growth in a single year.

It had been estimated by company officials that the company would add approximately 74,000 telephones to the system in 1955. The count taken at the close of business on December 31, however, disclosed that the estimate was short by 7,248. "The additional 7,200 telephones in service resulted from stepped up sales programs and unexpected new demands," Blakeslee said.

The 81,248 telephones which were

added in 1955 represent an investment of approximately $50,000,000, since each telephone and the associated facilities required to furnish service cost about $637.00. "The largest construction program in General's history is planned for 1956," Blakeslee said and added that the company expects to gain 77,000 new telephones in the coming year. By installing 6,400 telephones per month this year, General will serve more than 786,000 telephones by December 31, 1956.

## Weldon Case Named Gen. Mgr. of Elyria Tel.

WELDON W. CASE, a member of a family long prominent in Ohio's Independent telephone industry and president and general manager of The Western Reserve Telephone Co. of Hudson, Ohio, has been named general manager of The Elyria (Ohio) Telephone Co. of Elyria, Ohio. He succeeds Roy W. Ammel, who recently resigned as president and general manager. Mr. Case has given up his post as general manager of the Hudson company but will retain the presidency.

Mr. Case, who is 34 years old, took over the management of The Western Reserve Telephone Co. in 1946 after his discharge from the army. The company was organized in 1927 and dates back to 1910 when Mr. Case's grandfather merged two existing telephone companies. Associated with Mr. Case are his three brothers, Nelson H., Baxter H., and Theodore H. Together they own approximately 94 per cent of the company's stock.

Mr. Case is active in The Ohio Independent Telephone Association, having been its president in 1951. He now is vice president. He has served for three years as chairman of the Telephone Service Committee of Ohio.

## Kenneth L. Schroeder Joins Northwestern Telephone Co.

KENNETH L. SCHROEDER, formerly of the Gary Group Operating Companies, has been elected executive vice president and general manager of the Northwestern Telephone Co., Freeport, Ill.

A native of Geneseo, Ill., Mr. Schroeder has had a long and varied careeer in the telephone business. He has served as a cable tester with the

K. L. SCHROEDER

American Telephone & Telegraph Co.; installer-repairman with the Geneseo (Illinois) Telephone Co.; district manager for the Illinois Telephone Co., Roodhouse, Ill.; manager, Wiconisco Telephone & Telegraph Co., Elizabethville, Pa.; general superintendent, Ohio Community Telephone Co., Cadiz, Ohio; manager, DeKalb-Ogle Telephone Co., DeKalb, Ill.; and president of the Nebraska Continental Telephone Co.

For the past two years he has been executive assistant to A. S. Crane, chief executive, Gary Group Operating Companies.

Mr. Schroeder is a past president and director of the Nebraska Telepone Association, and has been active in civic, service club and church work. He assumed his new duties with the Northwestern Tel. on Feb. 1.

## Walter D. Hansen Joins Northern Ohio Telephone Co.

F. G. WILLIAMSON, general plant superintendent of Northern Ohio Telephone Co., Bellevue, has announced the appointment of Walter D. Hansen, Jr., as plant engineer, attached to the home office.

Mr. Hansen comes to Northern Ohio Telephone Co. from Grand Rapids, Mich., where he had been associated with General Telephone Co. for the past 10 years. He has had experience as a cable splicer and has done both mantenance and construction work before becoming facilities engineer for that company. During World War II, Mr. Hansen was attached to the Signal Corps for three years.


TELEPHONE ENGINEERS

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**ENGINEERS**

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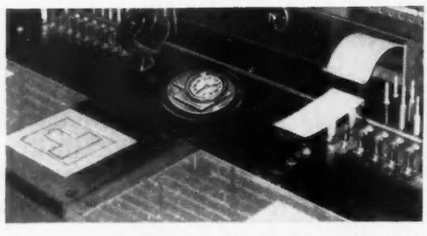
***The World's Largest Field Service Organization***

# RATES and ROUTES can be just SECONDS away

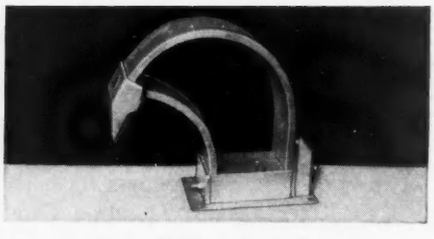
WITH WHIZ TUBES—the new, low-cost pneumatic ticket tube system—rate and route desks and switchboards are never more than 25 ft. per second apart! Operators send and receive toll tickets with the speed and convenience of plugging in a jack.

WHIZ Tubes, engineered and installed by International Standard Trading Corporation, associate of International Telephone and Telegraph Corporation, are suitable for all types of exchanges. Combining pressure and vacuum principles, the system uses a minimum of space and power. No revolving parts at switchboard and rate and route desk—just small, conveniently located sending and receiving terminals. Corrugated tubing gives extra reliability—minimizing the effects of static, friction, and humid air on ticket flow.

Why not investigate WHIZ Tubes for your telephone operation? Find out, without obligation, just how much your service can be speeded up . . . how much money you'll save on operating costs. Write today for full details.



**Pressure receiver** at right, below the jack panel, delivers a ticket. Operator's vacuum sender is at left. Pressure senders are similarly flush-mounted in rate and route desks.

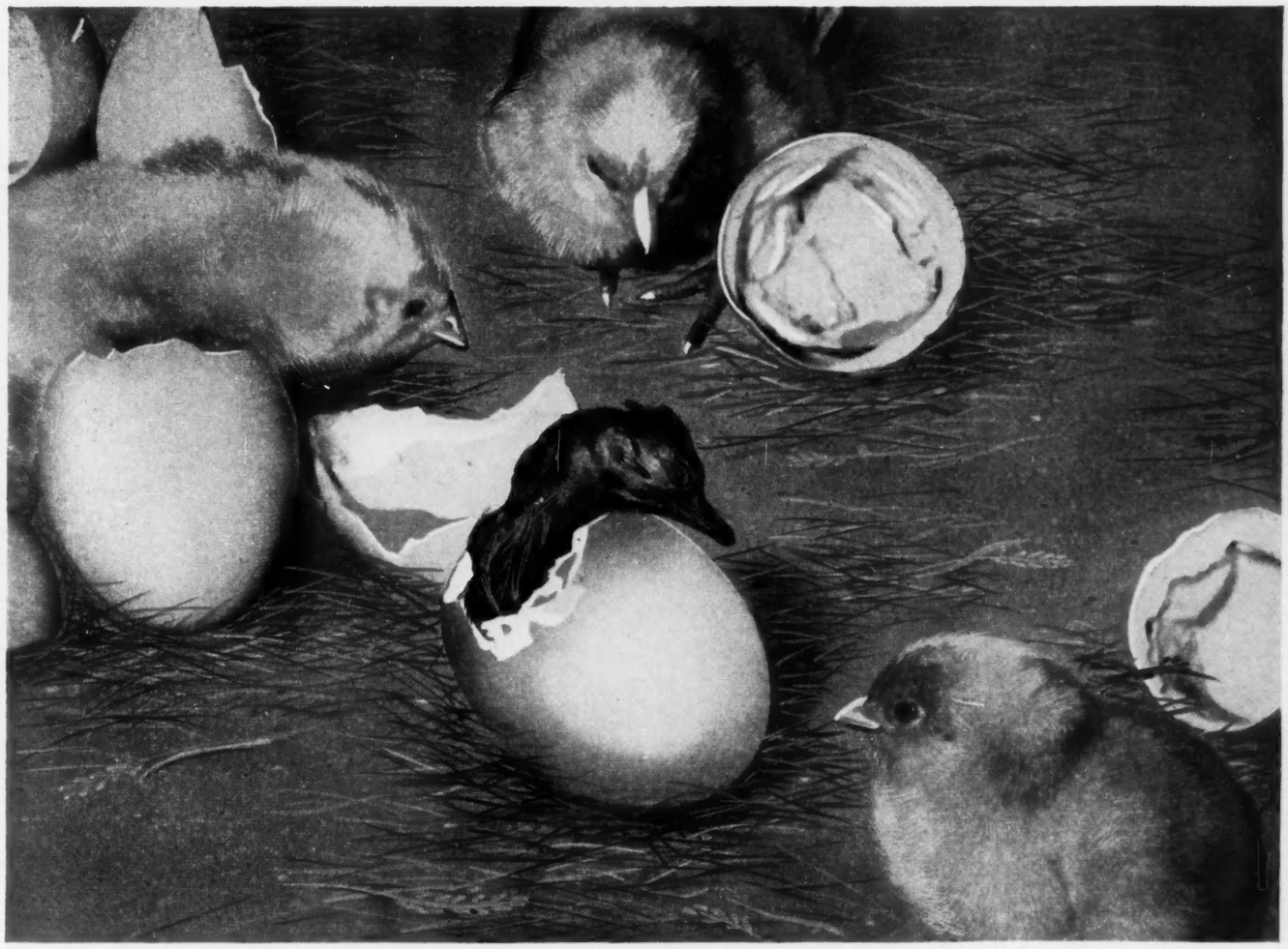


**Compactness** of this automatic vacuum receiver permits mounting multiple banks of units in a minimum of space on rate and route desks.

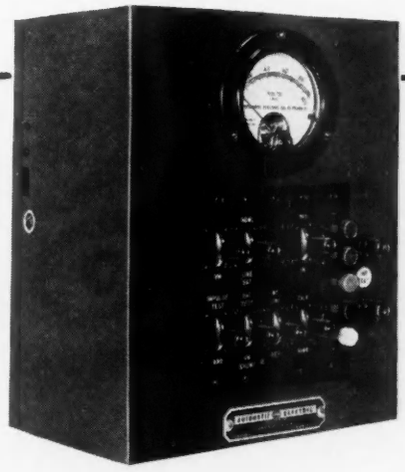
*International Standard Trading Corporation*

An IT&T Associate

22 Thames Street, New York 6, N. Y.



# Find trouble BEFORE it hatches!



**Automatic's Type 22 WIRE CHIEF'S TEST UNIT**

**TYPE 22'S SO SIMPLE,** it encourages your men to make tests frequently! Result: they find cable pairs that are only *starting* to cross, and connections that are only *begining* to develop high resistance. They can take prompt measures that save big repair bills later—and your subscribers get uninterrupted good service!

By merely operating a few keys and noting the voltmeter reading, your maintenance man can do all the testing necessary in a small central office. After plugging a test shoe into a line, he can check grounds, opens, crosses, and shorts, test ringing, test station equipment on a line, and monitor lines under test. He can also make two-way service calls. With the proper accessories, he can test dial speed and provide howler tone.

In automatic, CB manual, and magneto offices of up to 400-line capacity, Type 22's are proved time-savers. Ask for new Circular TT-1837, giving full data on models for straight-line and harmonic ringing. *Address: Automatic Electric Sales Corporation,* 1033 *W. Van Buren St., Chicago* 7. *Or call HAymarket* 1-4300.

**AUTOMATIC ELECTRIC**

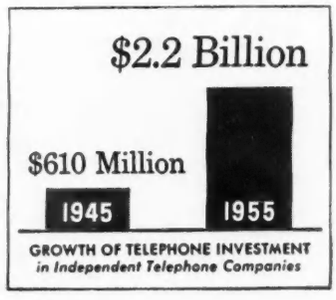
GENERAL SYSTEM INDEPENDENT

ORIGINATORS OF THE DIAL TELEPHONE

Building a telephone cable line above Copake, New York

# Open for business!

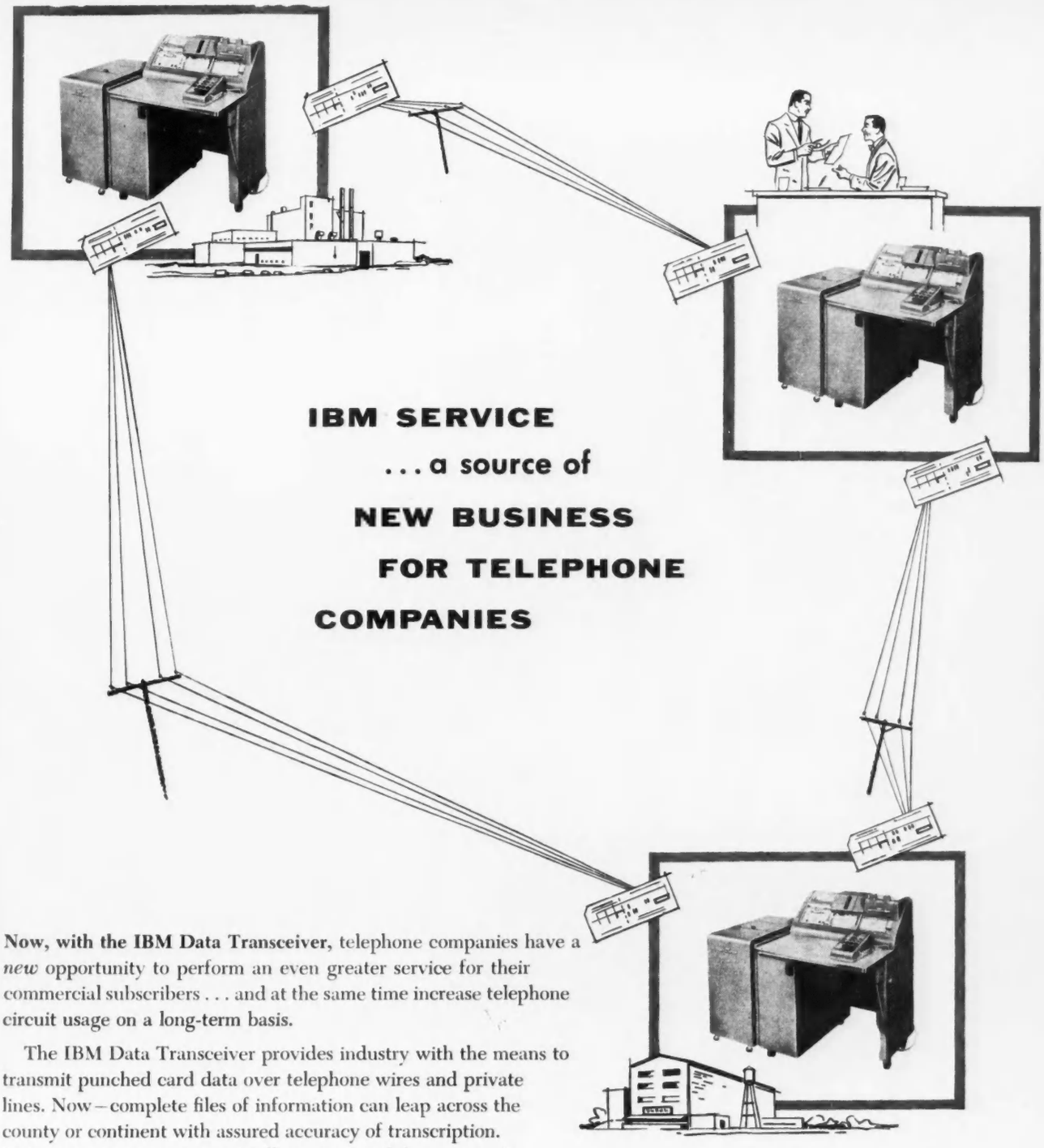
There are three million square miles to this land of ours. Independent companies provide telephone service for two-thirds of it! Today, progress in modern communication, power, and transportation has opened every part of this wide area to business and industry—long tied to the cities—now free to settle wherever new markets and natural resources beckon. Across the nation, fast-growing, first-rate service by Independent telephone companies helps 11,000 communities attract migrating industry... and develop their own.




INDEPENDENT

## Independent Telephone Companies of America

*United States Independent Telephone Association • Pennsylvania Building • Washington, D.C.*



# IBM SERVICE
## . . . a source of NEW BUSINESS FOR TELEPHONE COMPANIES

**Now, with the IBM Data Transceiver,** telephone companies have a *new* opportunity to perform an even greater service for their commercial subscribers . . . and at the same time increase telephone circuit usage on a long-term basis.

The IBM Data Transceiver provides industry with the means to transmit punched card data over telephone wires and private lines. Now—complete files of information can leap across the county or continent with assured accuracy of transcription. Business management can install an integrated data processing system that will enable it to disperse plants, sales offices, warehouses, laboratories, and executive offices—strategically.

The operating principle is simple. At one end of the line (the warehouse or factory, for example) the Data Transceiver reads the detailed punched card and transmits the information over the wire. At the other end of the line (the home or branch office, for example) the signals are immediately picked up by a second Data Transceiver and a duplicate card automatically punched.

As industries, populations, and markets shift, more and more of your subscribers will be interested in the IBM Data Transceiver. As always, IBM facilities and experienced personnel are ready to do everything necessary to make rapid customer installations.

*For all the facts, contact your local IBM representative, or write: COMMUNICATIONS DEPARTMENT A56, International Business Machines Corporation, 590 Madison Avenue, New York 22, N. Y. Ask for free folder, "IBM Data Transceiver."*

**IBM** DATA PROCESSING

DATA PROCESSING • ELECTRIC TYPEWRITERS • TIME EQUIPMENT • MILITARY PRODUCTS

# Rely on Graybar...

## ESPECIALLY IN EMERGENCIES

Graybar's long experience in serving the every day needs of telephone companies is especially valuable when lines go down.

A nation-wide network of Graybar offices and warehouses provide ready accessibility to stocks of essential telephone supplies. You can depend on the fastest possible deliveries of emergency replacement items — wherever and whenever they are needed.

Experienced Graybar personnel have developed the know-how needed to initiate immediate action and efficient follow-through from working closely with telephone companies daily and through emergencies of all kinds.

Moreover, Graybar is totally owned by its operating and retired personnel. That's why you're sure to get, especially on emergencies, *personal* service from people who have a *personal* interest in giving you the assistance you need, when you need it.

610-222

**Graybar Electric Company, Inc.**
**420 Lexington Avenue, New York 17, N. Y.**

*Call Graybar first for...*

**IN OVER 130 PRINCIPAL CITIES**

# EVERYBODY'S TALKING ABOUT THE NEW PICTURE GRAPH—

*the complete 5-minute explanation of the Remington Rand Simplified Revenue Accounting Plan for the Independent Telephone Company!*

Now, ready at last, is a concise, lucid, and complete Picture Graph of the Remington Rand Simplified Revenue Accounting Plan that's already causing so much favorable talk in the independent telephone field. With this new illustrated Picture Graph, it will take you only minutes to learn the *full* story from beginning to end . . . the *how* and the *why* of this revenue accounting plan that's custom made for independent telephone companies. You'll learn *how* it works, and works so well, and *why* it will give you:

1. Faster and more accurate billing
2. Increased subscriber satisfaction
3. Reduced operating costs

Write today for your free Picture Graph of the Simplified Revenue Accounting Plan for the Independent Telephone Company. Ask for X1618 when you address Room 1264.

**Remington Rand**
DIVISION OF SPERRY RAND CORPORATION
315 Fourth Avenue, New York 10, N. Y.

# *To save the BIG money in utility servicing...*

# *Get the trucks that are All-Truck Built!*

**When you put INTERNATIONAL trucks** on your job, you start making BIG savings in the area of biggest truck costs — operation and maintenance.

INTERNATIONALS work with less strain under load because they are *all-truck built*—with no passenger car design or engineering compromises, no passenger car engines or components asked to do a truck job. They move their loads at slower engine rpm — go extra miles per gallon of gas and quart of oil — go *more* miles over the years, with fewer overhauls and major servicing, less downtime for breakage and wear.

The proof is in the records of cost-conscious operators who have made INTERNATIONAL heavy-duty, 6-wheel and multi-stop trucks the sales leaders for years. See your INTERNATIONAL Dealer or Branch and get full facts on the right trucks for your job—all-truck built to save you the BIG money.

**All-truck INTERNATIONALS** for electrical and telephone servicing include 8 light-duty models with Service-Utility body (illustrated), plus 3 light and medium-duty four-wheel-drive models, conventional and cab-forward trucks in capacities for every service job. Widest truck choice in the world's most complete truck line.

**INTERNATIONAL HARVESTER COMPANY · CHICAGO**

**INTERNATIONAL® TRUCKS**

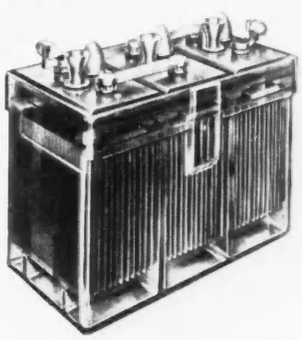
***All-Truck Built to save you the BIG money!***

Motor Trucks • Crawler Tractors • Industrial Power
McCormick® Farm Equipment and Farmall® Tractors

# "Battery Performance is my Business!"

Your Gould Field Engineer has one job—to make sure you get greatest possible service from your batteries. In performing that job he sees to it that your batteries are properly cared for and maintained; he instructs your personnel in systematic maintenance methods; he helps you anticipate battery needs; he makes sure you get maximum battery performance.

Gould Field Engineering Service is nation-wide. Every member is factory-trained . . . has plenty of on-the-job know-how. There's a Gould Field Engineer in your area. He's as near to you as your telephone. Call him. And when you see him, ask him for the new Gould Plus-Performance Plan material for your battery maintenance staff.



GOULD
Plastic Cell Batteries
for Stationary Service

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**"BETTER BATTERIES THROUGH RESEARCH"**

**GOULD**
**Batteries**

**GOULD-NATIONAL BATTERIES, INC.**
TRENTON 7, N. J.

*Always Use Gould-National Automobile and Truck Batteries*

# This is Our Last Advertisement . . .
## *and we're mighty proud of it!*

LOOMIS ADVERTISING COMPANY

*Telephone Directory Advertising*

You of the telephone industry, who are our clients and friends, have given us of Loomis Advertising Company a keen sense of accomplishment.

For thirty years Loomis Advertising Company has stood staunchly for integrity and accomplishment. In selling or publishing thousands of telephone directories, we are proud that each was an improvement over its predecessor. We have kept pace with technical advances, and are proud that we have played our part in creating innovations that have improved the telephone directory and made it known as "the buyers' guide of America."

A service organization like ours is made up of people . . . people of whom we are proud . . . people who have been able to grow with the telephone industry.

This is our last advertisement because the telephone directory activities of Loomis Advertising Company are being integrated with General Telephone Directory Company. Wesley H. Loomis III, who has been our President since the death of his father, has been elected President of General Telephone Directory Company. It is anticipated that our Vice President, Roland T. Beard, will become a Vice President of the expanded General Telephone Directory Company operation. The integration of these two telephone directory organizations will require the very best talent and experience. We anticipate that our personnel will continue to give the same loyalty and service to General Telephone System which they have given to Loomis Advertising Company.

Eldridge King, who has been associated with us for twenty-six years, has become President of Loomis Advertising Company to insure the complete integration of our telephone directory activities into General Telephone Directory Company. This accomplished, he anticipates a well earned rest and will enjoy his leisure hours supervising the development of his registered Polled Hereford herd.

As we take this important step, it is fitting that we pay tribute to our founder, Wesley H. Loomis, Jr. Here was a man imbued with the Christian spirit, whose personality and integrity influenced not only his friends, but in particular those associated with him in business. He gave Loomis Advertising Company its "know-how," its understanding of good public relations, and the "follow-through" to give you the best telephone directories possible.

Thank you for the confidence you have placed in Loomis Advertising Company. We shall strive to serve you even better in our new capacity.

## PLANTER OF SEED

BY *Thomas Hart Benton*

Thanks to the telephone, there's one farmer who will get his seed planter repaired in time to start making a cash crop.

Getting needed service is only one of the many benefits the telephone brings to any farmer. And the Telephone Directory plants seeds for more efficient work and more comfortable living.

If your company serves rural subscribers, take a look at your present Telephone Directory. Does it give a farmer *all* the information he wants in the Yellow Pages? Could improvements be made with the problems of the farmer in mind?

One of our representatives can be helpful to you in answering these questions. For the Loomis Advertising Company is retained by many companies that successfully serve rural areas.

It is Loomis' business to build bigger and better directories, tailored to meet the needs of the communities they serve. The result, in every case, is more net revenue for the telephone company.

You owe it to your subscribers, your employes and yourself to find out the advantages of Loomis' Complete Directory Service. Write or call the Loomis office nearest you. There's no obligation on your part.

# LOOMIS

**ADVERTISING COMPANY**

**Over 785 cities and towns in 20 states are served by 257 Loomis-built directories.**

We have commissioned Mr. Benton to draw four scenes of American Life. A limited edition of 9 x 15-inch prints suitable for framing has been ordered. We think they offer a nice public relations touch to your telephone office decoration. To get your Benton print FREE, write Wesley H. Loomis III, 810 Baltimore, Kansas City, Mo.

*LIFTS YELLOW PAGE REVENUE . . . BUILDS PUBLIC RELATIONS*

*"Where to Call"*

**KANSAS CITY**
810 Baltimore
HArrison 1-1270

**FORT WAYNE**
229 E. Berry St.
EAstbrook 3477

# Guard your splices right with these

REG. U. S. PAT. OFF.

# SCOTCH Electrical Products!

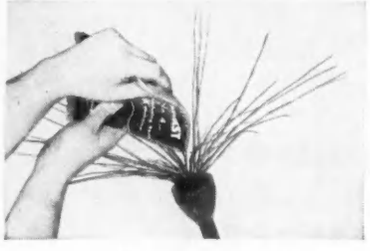
BRAND

**Approved for splicing plastic communications cable**

**"SCOTCH" Brand Plastic Tapes**—the *original* plastic tapes. First developed and perfected in our own laboratories. Made to exacting quality standards. Tough, impervious vinyl plastic. Two thicknesses available: 7 mils (No. 33—the standard of all plastic tapes) and 10 mils (No. 22—for extra abrasion resistance).

**"SCOTCH" Brand Aluminum Tape** — has special adhesive to insure an effective moisture barrier. "SCOTCH" Electrical Tape No. 49 is available in 2 inch by 20 foot rolls.

**"SCOTCHFIL" Electrical Insulating Putty** —a putty in tape form. Application is clean, rapid, economical. Excellent as a fast build-up for cable splices. Long life, stays firm and flexible, doesn't dry out or become hard and brittle.



**"SCOTCHCAST" in "Unipak" Container**—casting resin and hardener in plastic double bag. Knead to break inner bag and mix hardener with plastic, then pour. Sets in a few minutes, provides a perfect moisture seal. Makes impervious moisture blocks in cable ends. Especially recommended for splicing lead sheathed cable to plastic sheathed cable.

**Above products** are approved for use in REA splicing procedures PC-2 and PC-3. Available at your wholesaler. Further information and copies of splicing procedures will be sent free on request. Write Dept. MI-26, Minnesota Mining and Manufacturing Co., St. Paul 6, Minn.

The term "SCOTCH" and the plaid design are registered trademarks of Minnesota Mining and Manufacturing Company, St. Paul 6, Minn. Export Sales Office: 99 Park Avenue, New York 16, N.Y. In Canada: P.O. Box 757, London, Ontario.

3M COMPANY

# EDITORIAL

Telephone Engineer

## "Never Too Old To Start Learning"

AN INDUSTRY "old timer" paid us a visit a fortnight ago. After he had comfortably seated himself and made a few observations on the weather, politics and the tax situation, he said, "I really dropped in to tell you I'm selling out. This industry is moving too fast for me. Things are happening that are way beyond the bit of book learning I've had. I'm too old to start cracking open books. I'm moving out before some mistake of mine messes up the whole U. S. telephone system . . ."

That phrase "*too old to start cracking open books,*" stuck with us long after "old timer" left our office. It hadn't made sense when we first heard it and as we repeated it we couldn't reconcile its meaning with the facts as we know them.

We will grant progress of the telephone industry has made obsolete the simple circuits of yesterday and replaced them with the complex circuits of highly mechanized equipment. We also will grant that these are times of revolutionary scientific development — times that herald uncounted telephone marvels as the Electronic Age moves off the drafting board and rolls into production.

We cannot, however, subscribe to the theory that an industry member, familiar with present mechanisms — the relays, selectors and switches — cannot learn about and become familiar with the semi-conductor devices — diodes, thermistors, transistors, etc. — that will do the switching and controlling of tomorrow's telephone system.

As we see it this is no time for deciding that progress is passing us by. Rather than give up it appears that a telephone man of today should resolve to keep up with the progress and move with it.

It has been our observation that the ability to learn is not a power granted only to the youthful members of our society. It is a continuing process — a faculty developed in early years and one that should not stop with the receipt of a high school or college diploma.

The urge to learn, the ability to read and understand is part and parcel of the makeup of every telephone man. It may be lying dormant but there are many methods of restoring it to activity.

"Old timer" mentioned one method when he referred to "cracking open books." Opening books and studying their contents is a sure way to revive the learning process. And barring illness resulting in a complete decline of physical and mental processes we have yet to see a man or woman who was too old to learn. Among our friends we count several in their late sixties who have maintained their educations by continuing to study. These friends are not afraid the future will make their knowledge obsolete. They look forward to the day when line concentration equipment will triple the number of stations served by a central office. They're prepared for the day when an average size C. O., equipped with miniature components, will be little larger than an ordinary garage. The fact that the industry is utilizing radio relay to fling telephone conversations and TV across the country does not make them and their methods seem obsolete.

We applaud these friends of ours. They have maintained their educations by continuing to study, by reading more and by ceaselessly striving to understand the new developments. We applaud them for recognizing that today and tomorrow belong to those who do not stop learning.

Most of all we congratulate them for proving that "a person is never too old to learn." In our opinion "old timer" is going to miss some wonderful experiences because he decided he "was too old to 'crack' open a book."

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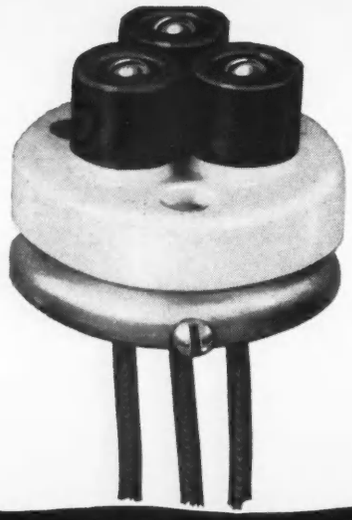


# The HV Protector you knew is now the No. HVP Protector —it's better than ever, Boss!

This Reliable protector is a high voltage, high current unit, factory wired, for use on communication lines joint with power conductors and at power crossing conflicts. The unit may also be used as a high current lightning arrester for two wires. Two sizes are in production — the 30HVP with an air gap breakover of approximately 3,000 volts AC, RMS, and a Type 20HVP with a breakover of approximately 2,000 volts. The unit consists of three heavy duty, cylindrical carbon electrodes mounted on a steatite ceramic base. This base is attached to an aluminum bracket and covered with a weathertight, bug proof drawn aluminum shell.

One 6 ft. and two 2 ft. No. 10 insulated copper conductors enter the base through neoprene grommets. Wires are permanently connected to the carbon electrodes by solderless method. Cover is secured to the bracket base with a screw clamp — and can be removed for inspection. The 30HVP and 20HVP protectors are for use on one pair of open wires. Yes, sir, Boss, the "HVP" looks like a dandy . . . I think you should ask for a sample for inspection.

**RELIABLE ELECTRIC COMPANY**
3145 CARROLL AVENUE
CHICAGO 12, ILLINOIS

Reliable

Telephone Protective and Terminal Equipment for all Station, Line and Central Office Needs.

OVER 45 YEARS' SERVICE TO THE UTILITIES

# Keeping Up With the Parade of Progress

By T. DeWITT TALMAGE*

**HOW TO HARNESS Shifting Business Patterns – Importance of Balancing Rates and Service – Studying Regulatory Commission Trends – Country-wide Employment Figures – Sources of Telephone Job Information.**

IN MANY LINES of endeavor, being successful requires steadily looking ahead as well as keeping a weather-eye cocked on all sides, including glimpses backward at the lessons of the past. Such an all-around plan of keeping in touch with changing business patterns minimizes the danger of living in the past.

This necessary alertness to trends within one's immediate field of interest often can be extended with profit to other related businesses that influence present or may influence future conditions.

In fact, the demand for front seats by shrewd business men to study the passing parade of business accomplishments — and near accomplishments — is one reason for heavy attendance at trade association meetings, large subscription lists to progressive magazines of industry, active participation in a variety of formal and informal training programs, and enthusiastic reception of recent publications, some of which will be discussed later on in these comments.

In the utility business, as in other real life situations, you don't get "in" just by asking alone — you have to earn and learn the password. However, getting started in any business is only the first skirmish of the battle. To stay in it and be reasonably effective, let alone successful, as many will testify, demands an equal amount of enterprise and resourcefulness. Recognition of these elemental facts coupled with the necessity of keeping posted on important developments account for the wide range of ages represented in so many current training and refresher courses.

There are slightly different versions of a thought-provoking statement heard periodically at meetings of telephone people to the effect that there is no other business of comparable size in this country about which you can get more information than the Independent telephone business. Because sources of some kinds of requisite information are more scattered than others, it follows that the time needed to collect an adequate amount together on any one subject may differ radically from that required by another subject.

Therefore, it will behoove one to start collecting the facts sufficiently in advance of actual need. Such an approach will do its part in helping one get the jump on others who are competing for the same customer's dollar. This is a practical example of the policy that to be forewarned, is to be forearmed.

Certainly, many vital trends in our industry can be observed by regular study of publications devoted to the communication business. One of the more obvious current trends, of course, is the continuing steady emphasis on installing dial telephone service in all sizes of communities. There is a noticeable speeding up of the tempo of making conversions direct from existing magneto manual telephone service to dial telephone service, omitting the intermediate stage of common-battery manual telephone service, which in the past, was often considered an economically indispensable step. This development has important implications, especially on the revision of and, perhaps, even the improvement of skills required by employes.

The illustration (page 51) shows a section of a much larger group of representatives of progressive Independent telephone companies becoming proficient by instruction and practice with the most modern dial telephone apparatus inspection and adjustment procedures. This training course passes along factory "know-how" through carefully selected methods, in a suitable learning climate, and according to a well-conceived time-tested plan.

Shifting economic conditions and changing customer requirements dic-

*Educational Manager, Kellogg Switchboard & Supply Co., Chicago, Ill.

(chinese red,

antique ivory,

canary yellow,

chestnut brown,

olive green,

desert beige,

french blue,

dove gray)

# Gay co

## and two-way mounting

(Stromberg-Carlson color telephones can be either table- or wall-mounted—change over easily in a matter of minutes)

## can help you promote that second phone!

(subscribers *love* extensions that blend well with their home's color scheme and can be installed right where they need them!)

*Call your Stromberg-Carlson branch office for sales helps and prices.*

these colors fit!

Here are just a few suggestions:

**BEDROOM:** warm red, yellow, soft beige, ivory.

**DEN:** rich brown, dignified gray.

**LIVING ROOM:** stylish green, ivory, red.

**KITCHEN:** gay red, blue, yellow or green.

**BASEMENT/WORKSHOP:** manly brown, blue.

**STROMBERG-CARLSON COMPANY**

A DIVISION OF GENERAL DYNAMICS CORPORATION

Sales Offices: Atlanta 3, Chicago 6, Kansas City 8, Rochester 3, San Francisco 3.

tate, and recent telephone equipment developments allow, new answers to old problems. The battle to keep expenditures within income is never-ending. Cost of labor is an important controllable cost in any type of public utility service.

No matter how low a company's construction and operating costs may be, there is a good chance that if you look long enough, you will find someone who has done it equally well and cheaper. The danger in such comparisons is that lower costs do not necessarily mean that all other things are equal. This is especially true when comparing certain material and equipment costs. In this respect it is well to keep in mind the admonishment of John Ruskin (1819-1900) who said: "There is hardly anything in this world that some man cannot make a little worse and sell a little cheaper, and people who consider price only are this man's lawful prey."

Today, as in the time of Ruskin, it doesn't pay to trade expediency and false economy for sound principle and survival.

**T. DeWITT TALMAGE'S broad experiences as telephone engineer for the Illinois Telephone Association, as principal communications engineer for the Tennessee Valley Authority, and as education manager of the Kellogg Switchboard & Supply Co., Chicago, Ill., have been the subject of reports at many meetings of telephone people and in the trade and technical press. He is the author of 50 articles on telephone commercial, plant, and engineering practices. This is the 10th time that *Telephone Engineer & Management* has brought to its readers a discussion by Mr. Talmage of current, urgent problems facing our industry.**

T. D. TALMAGE

**Mr. Talmage was born on July 21, 1903, in Lincoln, Illinois. He obtained his formal education in electrical engineering at the Milwaukee School of Engineering and the College of Engineering and Commerce of the University of Cincinnati, Ohio.**

**In 1949 Mr. Talmage joined the Kellogg Switchboard and Supply Company, a Division of the International Telephone and Telegraph Corporation. For the past three years he has been in charge of Kellogg's training program.**

**Mr. Talmage is a registered professional engineer and past chairman of the East Tennessee Section of the American Institute of Electrical Engineers. He is an active member of a number of civic, fraternal, and professional societies and clubs, including the Independent Telephone Pioneer Association.**

### *Balancing Rates and Service*

SOME CURRENT problems in other branches of the public utility business have their counterparts in varying degrees in the telephone industry. A typical one is the tug-of-war that goes on between railroads and their passengers. In some instances the continued use of old railroad passenger cars so irritates the users that efforts to get much needed fare increases are met by a storm of protests to the effect that "the service offered is not worth existing charges, let alone higher ones."

Mr. Stanley Berge, professor of transportation of Northwestern University's Commerce School, made the following comment on this situation: "In our public policy toward railroad service, we have paid too much attention to keeping the price down and too little attention to keeping the service up."

He cited the cost of driving and parking an automobile[1] to prove that people will pay a high price for good transportation. In other words, where obsolete rolling stock is used, there are often indications that present service at present rates is no bargain.

A chairman of one state utility regulating commission told a group of telephone people that he has found one way to reconcile the public demand for better utility service and the utility's requests for higher rates. He said that his commission allowed one telephone company a general rate increase, but held it up on some of its exchanges until commission engineers found service at them satisfactory.

He said: "This method of holding up increases has been a way of recognizing the public sense of injustice when rates are raised where service is inferior and, at the same time, giving the company money that is absolutely essential to improving service."

This same commission chairman questioned the application of traditional rate determining methods to small companies. The so-called traditional method, he said, was developed with large companies whose problem was to get a sufficient rate of return on their investment to attract capital. Small companies, he said, have the added problem of attracting good management.

"It seems to me," this commission chairman stated, "that a company with a small investment, giving good service at low rates compared with those of other firms, ought not be held down by traditional methods of calculating return on an investment."

The thirty-fifth annual report of the Illinois Commerce Commission contains this information in Chapter III, entitled Telephone Rates: "During the past fiscal year operating costs of telephone utilities continued to increase as a result of the growing cost of both labor and materials. However, telephone rate increases authorized during the period totaled only an estimated $1,468,097 annually, compared with a total of $6,032,954 in the preceding period, including $5,644,000 granted to the Illinois Bell Telephone Company."

"Of the increases granted to ten companies in fiscal 1952, an estimated $1,183,000 annually was authorized for the Illinois Commercial Telephone Company (Ill. C.C. docket No. 38,800). However, the effective date of the increase at 53 of the company's 222 exchanges was delayed pending improvements in service or conversion to dial operation, which was not completed at the end of the period. The company has filed a new general rate schedule with proposed increases totaling an estimated $1,266,869 annually."

"Many of the other rate increases

[1] "*What Does It Cost To Own a Car?*" *by A. R. Railton,* POPULAR MECHANICS MAGAZINE, *Volume* 103, *Number* 9, *dated February,* 1955, *Pages* 150-153, 298, *and* 300.

**Photograph of a group of Independent telephone men being trained in the latest telephone relay adjusting techniques. These trainees include a manager, plant superintendent, equipment engineer wire chief, central-office equipment installer, dial switchman, lineman, and combination man.**

**Reading from front to rear in the left row are: *James K. Hauk*, Commonwealth Telephone Co., Dushore, Pa.; *Emil G. Miller, Jr.*, Eureka Telephone Co., Inc., Corydon, Ind.; *Leo W. Roath*, Columbia Utilities Co., Tulelake, Calif.; and *Lee D. Person*, Hector Telephone Co., Hector, Minn.**

**Right row from front to rear: *Albert J. Banker*, East Ascension Telephone Co., Gonzales, La.; *Edward P. Burney* and *Henry C. Keown*, both from the Walker County Telephone Co., Inc., LaFayette, Ga.; *Donald L. Hartman*, Central Iowa Telephone Co., Manchester, Ia.; and *Frank Braatz*, apparatus adjusting instructor, Kellogg Switchboard & Supply Co., Chicago, Ill.**

were made contingent upon improvements in service or salary increases for employes. Several rate increase orders provided for the discontinuance of so-called free toll service, continuing a practice discussed in detail in the Thirty-Fourth Annual Report. The effect on total revenues was slight.

"Rate reductions totaling $294,105 were put into effect by three companies, generally as a result of extension of urban service areas with a resultant reduction in rural line charges."

### *Studying Trends*

BROAD-GAUGED operators of public utility enterprises do not overlook or treat lightly the impact of government regulatory trends. The concern in public service commission activities accounts for the space allocated in the press to important regulatory developments. Wide-awake telephone companies subject to regulatory commission jurisdiction usually study matters of direct interest in more detail by securing from their commission's secretary, official copies of annual reports, general orders, rate decisions, statistical reports, press releases, transcripts of proceedings, and a variety of other information having a bearing on the solution of their day-to-day operating problems.

Information of this type is a matter of public record and it is just as available to the smallest company as it is to the very largest company. Some of it may be of more than passing interest to even the newest telephone employe. Upon request, from some public service commissions, an index of their publications and general orders can be obtained which will assist in pinpointing the most useful bulletins to get and study.

Newcomers to the telephone business do not always immediately appreciate the important influence of public service commission rules and regulations of their daily tasks. For those enterprising individuals who desire a more complete introduction to, and a better understanding of, telephone business problems in a minimum of time, a summary of the utility regulatory situation can be obtained from Herman H. Trachsel's book entitled "Public Utility Regulation," published in 1947 by Richard D. Irwin, Incorporated.

It is not necessary to be either an attorney, nor an accountant, nor an engineer to read this book and to become acquainted with the historical growing pains of the utility business as well as some of the reasons behind the existing regulatory pattern. The author, associate professor of political science at the State University of Iowa at the time of writing this book, is now professor of political science at the University of Wyoming.

Iowa, incidently, is one of only two states that have not placed the supervision of telephone rates and

*Please Turn To Page 87*

# Your Age In Relation to Fitness

*A greater proportion of our population is surviving into old age. What is the boundary line between youth and old age?*

By PHIL GLANZER

A PROGRESSIVELY greater proportion of our population is surviving into old age. Even the term "old age" is a relative one, since medical science has abolished or modified many of its characteristic signs.

Compared with the beginning of this century about twice as many people today are 65 years of age or older, and the average expectation of life has increased by about 20 years. This trend is continuing.

From the ordinary man's point of view, ageing is characterized by the impairment of the senses, notably sight and hearing, loss of strength and speed and a rigidity of mental processes. While he is substantially correct in this view, he is not correct in fixing a point in time as the boundary between "youth" and "age."

Whatever justification may have existed for measuring these states solely in terms of birthdays, the changed circumstances of our times have made this an unrealistic yardstick.

### *More Abundant Life*

GREAT STRIDES in antenatal and postnatal care of infant life, earlier diagnosis and greater skill in treatment of many crippling diseases, increased emphasis upon and expansion of preventive health services, better living and working conditions and better nutrition have combined to bring about revolutionary changes. This has been manifested not only in a mere increase in the life span, but what is even more important, a better wear and tear result.

We today truly have, at least in the physical sense, life more abundantly. By slowing down and modifying wear and tear a much longer effective youth span has resulted. That the chronological and physiological age may differ greatly in an individual is also a matter of common observation. Man is a unique, individual being and refuses to be reduced to the flat level of peas in a pod. This applies not only to the older groups, but also to the younger.

Many of the most responsible positions in the world are filled in an outstanding manner by men who have reached an age which is often regarded by an employer as "too old" for a minor post!

### *Job Diversification*

OTHER IMPORTANT factors in the evaluation of the question from the physical fitness point of view is the present day much greater diversity of types of work and the vast changes produced by mechanization of industry.

These have, as one would expect, tended neither wholly to favor nor wholly to penalize the older person for a job.

In jobs where speed, adaptability and strength are essentials the older worker is at a disadvantage as compared with the younger. But this does not tell the whole story. Older age groups score high marks in work attendance. Through being less reckless, they also score in showing a lower injury incidence and less desire to migrate from job to job. On the other hand, when they do suffer injury, as a rule recovery takes longer.

Fortunately not all jobs require speed and muscular strength. Experi-

ence, reliability and maturity are assets which can be readily used in many fields. A greater willingness to accept responsibility is a further advantage which is difficult to overestimate.

In the mental sphere the evaluation becomes both more complicated and more interesting. Undoubtedly mental processes exercise a profound influence upon physical fitness and skill. Narrowing of interest, unwillingness to learn and adherence to static life goals are the chill signs of the winter life. It would not, however, be true to hold that all individuals are subject to the same mental climate any more than all geographical areas are subject to the same physical climate.

As in the case of the latter, some individuals have only a short springtime and summer and a long winter, whilst others enjoy a long summer and but a short and mild winter. Youth means a temperamental predominance of positive qualities over negative ones and not merely a certain stretch of years.

### *"Wear and Tear"*

IT IS, MOREOVER, most important to analyze the significance of the wear and tear effects of ageing in relation to working fitness: a generalized view only will not bring understanding of the problem. The ageing process shows conspicuously its telltale signals in a certain rigidity of the individual's responses to his environmental demands. Applied to a working environment this must necessarily have a selective significance.

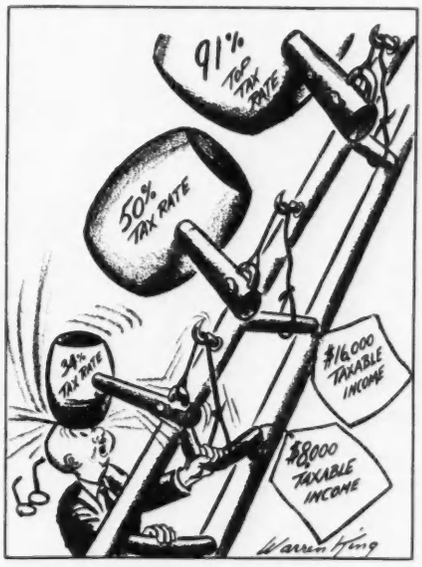
The gradual impairment in efficiency of responses begins comparatively early in life and is a progressive, but variable, process. Nature starts off her children with reserves of "capital" which when wisely used more than suffice for their normal use. In fact, we seldom use or are called upon to use all our abilities in the performance of a task.

Under severe demands, however, particularly when long sustained, the reserves may prove inadequate. Ageing reduces these reserves and, unless a compensatory mechanism drawn from the individual's own resources or provided for him, is available, performance may suffer. But where compensation, in one or the other manner is devised, the standard may be well maintained.

A vast and profitable field, therefore, opens up to the explorer, for all too little is as yet known about this interesting and important subject. This is given special point when it is remembered that an ever increasing proportion of the population is being formed of older age groups. If they are not eventually to fill the human hive with an intolerable number of drones, they must continue as working bees producing honey as long as they are effectively young.

Looked at beyond the immediate economic horizon, the question also enters the wider sphere of human happiness and significance: man has a vital need to express his energies in the form of work which can be translated in terms of social usefulness. He can only deny, or be frustrated, in this urge under penalty which both he and the community must ultimately pay. There is little doubt that with greater understanding of this question the sphere of genuine usefulness for the older worker should become steadily greater.

THE LADDER OF SUCCESS!?




## Road Must Be Cleared

**Tax discrimination** — the excessive, steeply-graded surtax rates — has destructive effects that go far beyond the penalties on those who bear the heavy burden.

**They form a "tax block"** to the economic growth of our country — to the investment in industrial plant and equipment, investment in jobs, which will be needed on a vast scale to provide for our rapidly growing population. Thus, our present tax structure adversely affects everybody.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# *Build your revenue* with a co

## . . . THE E

Here is the standard model which gives your customers the simplest, most effective 24 hour answering service available. *It answers the telephone, takes and holds calls when other lines are busy, records name, number and message, and tells the caller to call another number*—a complete secretarial service, a wonderful source of revenue for the telephone company.

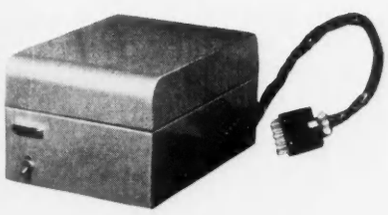
And with the new services now available in the complete Electronic Secretary line, you can offer your customers *a service tailored exactly to fit their own particular requirements.*

The standard Electronic Secretary, Model DCR-1, can also be ordered with: Headphone connection for private playback; automatic erasing and rewind; and automatic stop switch for recording spools to stop wire from running off spools.

LEICH

## complete line of telephone answering and recording devices

# ELECTRONIC SECRETARY LINE



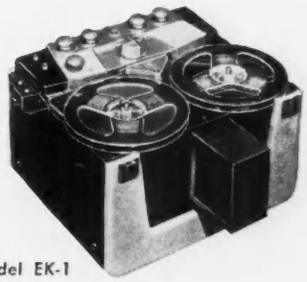
### Remote Call-Back

An accessory to the standard Model DCR-1. When this unit is tied into the Electronic Secretary, it is possible to call the number being answered by the Electronic Secretary and get a playback of all the incoming messages. No need for return to home or office.

Model T-R

### Automatic Answering

A self-contained Electronic unit designed for automatic answering and delivering a predetermined recorded message. It incorporates a 45 r.p.m. record which carries any desired message. Message can be changed by cutting a new record. Ideal for service businesses, doctors, lawyers, churches, etc.



Model EK-1

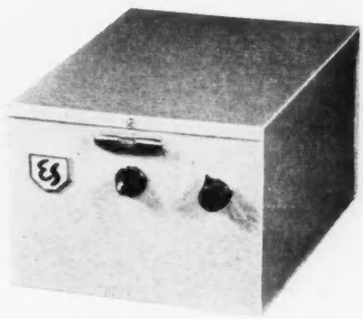
### Monitoring

For special adaptation for the exclusive use of operating telephone companies this model features a tape recorder for monitoring messages. Completely automatic mechanism facilities both forward and rewind operations. Model EK-1 is best suited for complaint and service departments, and telephone operator voice training.

Model T-T

### Variable Message Answering

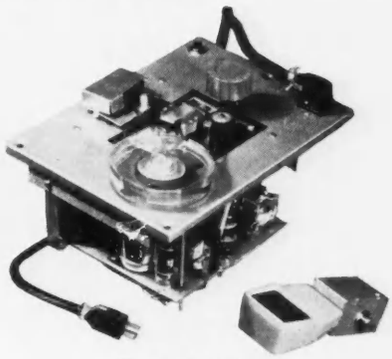
This unit performs the same function as Model T-R above, except the message can be changed as frequently as desired. Old message is automatically erased as new message is recorded. Especially designed for brokers, theaters, etc., where messages must be changed frequently.



Model SW

### Answering Two Lines

This device is an accessory to the standard Electronic Secretary, Model DCR-1. It is designed to offer the convenience of answering two separate telephone lines.



### Tape Adapter

The record player on the ELECTRONIC SECRETARY Model DCR-1 may be changed to a tape adapter. With complete flexibility, it can then record any desired answering message. The tape adapter fits perfectly into the same space as present record player. Full instructions for this replacement accompany the unit to insure satisfaction of performance and service.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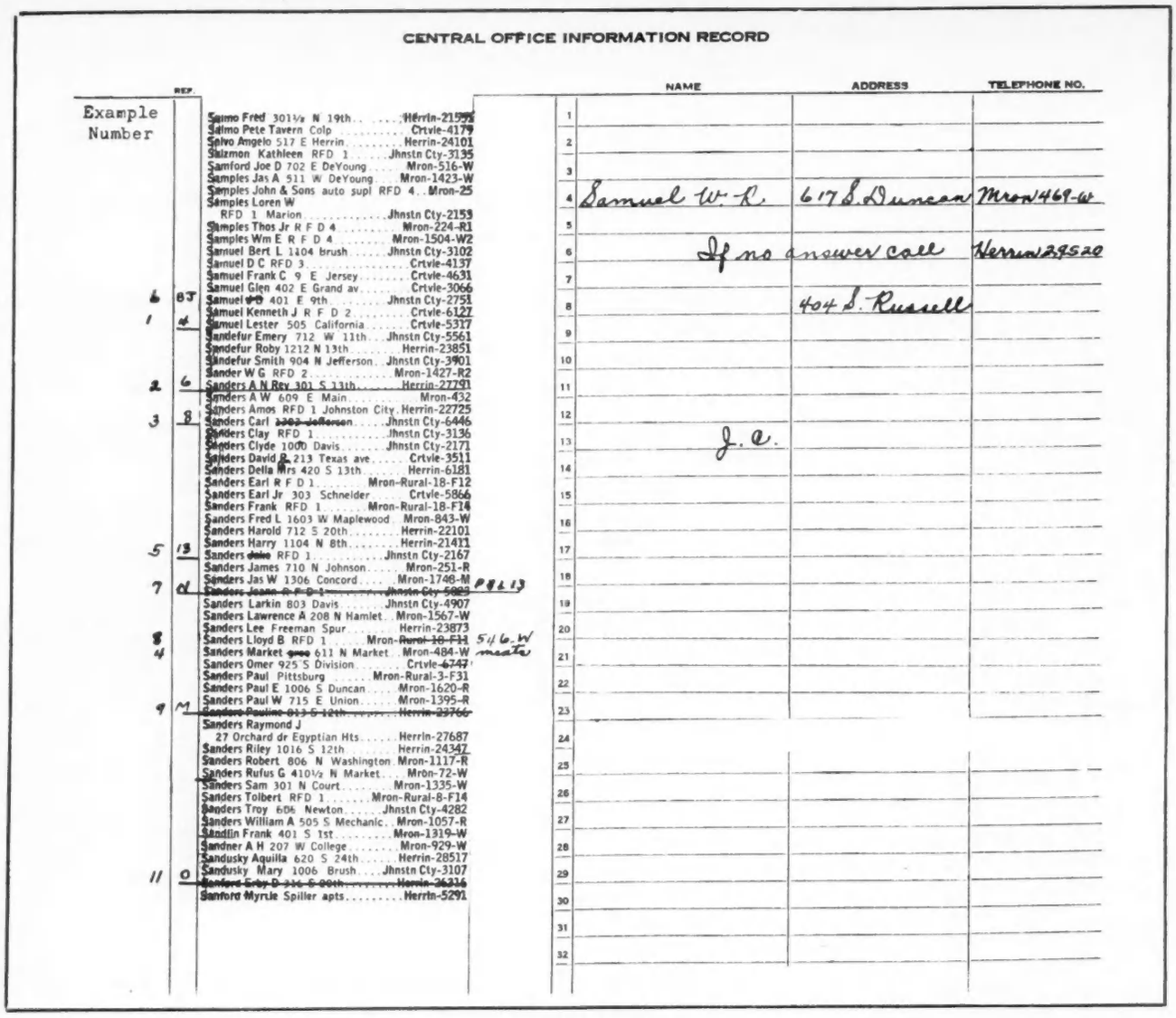
GENERAL TELEPHONE SYSTEM



CENTRAL OFFICE INFORMATION RECORD

| | REF. | | NAME | ADDRESS | TELEPHONE NO. |
|---|---|---|---|---|---|
| Example Number | | Salmo Fred 301½ N 19th ... Herrin-21595 | | | |
| | | Salmo Pete Tavern Colp ... Crtvle-4179 | | | |
| | | Salvo Angelo 517 E Herrin ... Herrin-24101 | | | |
| | | Salzmon Kathleen RFD 1 ... Jhnstn Cty-3135 | | | |
| | | Samford Joe D 702 E DeYoung ... Mron-516-W | | | |
| | | Samples Jas A 511 W DeYoung ... Mron-1423-W | | | |
| | | Samples John & Sons auto supl RFD 4 ... Mron-25 | | | |
| | | Samples Loren W RFD 1 Marion ... Jhnstn Cty-2153 | | | |
| | | Samples Thos Jr R F D 4 ... Mron-224-R1 | | | |
| | | Samples Wm E R F D 4 ... Mron-1504-W2 | | | |
| | | Samuel Bert L 1404 brush ... Jhnstn Cty-3102 | | | |
| | | Samuel D C RFD 3 ... Crtvle-4137 | | | |
| | | Samuel Frank C 9 E Jersey ... Crtvle-4631 | | | |
| | | Samuel Glen 402 E Grand av ... Crtvle-3066 | | | |
| 6 | 83 | Samuel [illegible] 401 E 9th ... Jhnstn Cty-2751 | | | |
| 1 | 4 | Samuel Kenneth J R F D 2 ... Crtvle-6127 | | | |
| | | Samuel Lester 505 California ... Crtvle-5317 | | | |
| | | Sandefur Emery 712 W 11th ... Jhnstn Cty-5561 | | | |
| | | Sandefur Roby 1212 N 13th ... Herrin-23851 | | | |
| | | Sandefur Smith 904 N Jefferson ... Jhnstn Cty-3901 | | | |
| | | Sander W G RFD 2 ... Mron-1427-R2 | | | |
| 2 | 6 | Sanders A N Rev 301 S 13th ... Herrin-27791 | | | |
| | | Sanders A W 609 E Main ... Mron-432 | | | |
| 3 | 8 | Sanders Amos RFD 1 Johnston City ... Herrin-22725 | | | |
| | | Sanders Carl [illegible] ... Jhnstn Cty-6446 | | | |
| | | Sanders Clay RFD 1 ... Jhnstn Cty-3136 | | | |
| | | Sanders Clyde 1000 Davis ... Jhnstn Cty-2171 | | | |
| | | Sanders David R 213 Texas ave ... Crtvle-3511 | | | |
| | | Sanders Della Mrs 420 S 13th ... Herrin-6181 | | | |
| | | Sanders Earl R F D 1 ... Mron-Rural-18-F12 | | | |
| | | Sanders Earl Jr 303 Schneider ... Crtvle-5866 | | | |
| | | Sanders Frank RFD 1 ... Mron-Rural-18-F14 | | | |
| | | Sanders Fred L 1603 W Maplewood ... Mron-843-W | | | |
| | | Sanders Harold 712 S 20th ... Herrin-22101 | | | |
| 5 | 13 | Sanders Harry 1104 N 8th ... Herrin-21411 | | | |
| | | Sanders [illegible] RFD 1 ... Jhnstn Cty-2167 | | | |
| | | Sanders James 710 N Johnson ... Mron-251-R | | | |
| 7 | 01 | Sanders Jas W 1306 Concord ... Mron-1746-M P&L 13 | | | |
| | | Sanders Jesse O F D 1 ... Jhnstn Cty-5899 | | | |
| | | Sanders Larkin 803 Davis ... Jhnstn Cty-4907 | | | |
| | | Sanders Lawrence A 208 N Hamlet ... Mron-1567-W | | | |
| | | Sanders Lee Freeman Spur ... Herrin-23873 | | | |
| 8 | | Sanders Lloyd B RFD 1 ... Mron-Rural-18-F11 546-W meats | | | |
| 4 | | Sanders Market [illegible] 611 N Market ... Mron-484-W | | | |
| | | Sanders Omer 925 S Division ... Crtvle-6747 | | | |
| | | Sanders Paul Pittsburg ... Mron-Rural-3-F31 | | | |
| | | Sanders Paul E 1006 S Duncan ... Mron-1620-R | | | |
| | | Sanders Paul W 715 E Union ... Mron-1395-R | | | |
| 9 | M | Sanders Pauline 813 S 12th ... Herrin-23766 | | | |
| | | Sanders Raymond J 27 Orchard dr Egyptian Hts ... Herrin-27687 | | | |
| | | Sanders Riley 1016 S 12th ... Herrin-24347 | | | |
| | | Sanders Robert 806 N Washington ... Mron-1117-R | | | |
| | | Sanders Rufus G 410½ N Market ... Mron-72-W | | | |
| | | Sanders Sam 301 N Court ... Mron-1335-W | | | |
| | | Sanders Tolbert RFD 1 ... Mron-Rural-8-F14 | | | |
| | | Sanders Troy 606 Newton ... Jhnstn Cty-4282 | | | |
| | | Sanders William A 505 S Mechanic ... Mron-1057-R | | | |
| | | Sandlin Frank 401 S 1st ... Mron-1319-W | | | |
| | | Sandner A H 207 W College ... Mron-929-W | | | |
| | | Sandusky Aquilla 620 S 24th ... Herrin-28517 | | | |
| 11 | 0 | Sandusky Mary 1006 Brush ... Jhnstn Cty-3107 | | | |
| | | Sanford Chas D 310 S 20th ... Herrin-26216 | | | |
| | | Sanford Myrtle Spiller apts ... Herrin-5291 | | | |
| | | | 1 | | |
| | | | 2 | | |
| | | | 3 | | |
| | | | 4 Samuel W. L. | 617 S. Duncan | Mron 469-W |
| | | | 5 | | |
| | | | 6 If no answer call | | Herrin 29520 |
| | | | 7 | | |
| | | | 8 | 404 S. Russell | |
| | | | 9 | | |
| | | | 10 | | |
| | | | 11 | | |
| | | | 12 | | |
| | | | 13 J. a. | | |
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**FIGURE ONE.**

# Maintaining The Book Records

By RUTH E. RICHARDS

WITH THE ECHO of the classic "Ring Out The Old, Ring In The New," etc., still lingering in the air, and before your shiny New Year's resolutions have begun to dim around the edges, let's turn our thoughts to new traffic projects for the year and resolve to seek different and easier ways to promote better service performance in the months ahead.

For your consideration this month, we suggest a review of your information records and practices, and offer a few ideas from the methods of other companies.

Several months ago these pages carried an article we called "*Stop and Go Signals*," covering the use of switchboard markings for indicating changes in the status of subscriber's service. In this outline we will suggest methods for establishing and maintaining the "book" records which are associated with the markings; information and intercept records.

The basic purpose of information service is to supply to customers, telephone numbers which do not appear in the customer's directory (new subscribers) and in conjunction with intercepting service, changed telephone numbers.

From a service standpoint, the objective is to find the desired listing regardless of whether it is for a new or long established number. The quality of the service given will depend to a great degree upon the accuracy, legibility and ease of access of the information records, as well as the knowledge and good judgment of the Information Operator. The facilities required to give the service will depend upon local conditions, such as the size of the community.

In smaller offices it is often de-

sirable to handle information calls at the regular local or toll switchboard. In some cases, information may be handled at a specially designated position, either by itself or combined with other services such as Rate and Route work. In other offices, Information may be handled at a separate desk by an operator, or perhaps by a supervisor, or in some cases by the Chief Operator. In some offices it may be desirable to use all three methods, depending upon the traffic load at different periods of the day. Whatever type of information answering is provided, it is important that prompt answers be given. The calling customer's call cannot be completed until he has secured the correct number.

### *Information Records*

INFORMATION records in book form are generally used in smaller offices where the service is at some periods given from the switchboard; (as opposed to a special information board occupied at all hours) such books should be of a size convenient to handle at the switchboard. The most satisfactory binder is of the loose-leaf type and the pages of a good grade of paper, each page containing on one side a printed or pasted single column of the regular subscriber's directory with space for entering new listings and changes, either in the margin or on the reverse side of the previous page. See *Figure* 1.

In large exchanges, rotary files are often used, or in some cases a combination of rotary and book records. Rotary file records will not be covered in this outline.

When information service is performed for other offices, such as dial tributaries of a toll center, the most practical arrangement of records depends upon the particular conditions. When both the toll center or operator office exchange and the other office or offices are operated by the same company, the listings for the communities may be interlocked in the same directory. By "interlocked" is meant the listings by name are arranged alphabetically, and the town and telephone number are shown to distinguish the subscriber's location. Service orders covering subscribers in all the communities are "worked" to this common directory. See *Figure* 1.

In other cases, separate directories may be maintained for each community served. These may be the regular subscriber's directory form, or an interleaved directory. An interleaved directory is a regular subscriber's directory into which the printer binds a ruled page between each page of printed listings. This extra page provides space for entering new listings and changes. This type of information record may also be satisfactory for a small manual office.

| OLD | NEW |
|---|---|
| (EXAMPLE 1) | |
| 121-W | 384-M |
| 97-F12 | 86-F3 |
| | |
| | |
| | |
| (EXAMPLE 2) | |
| 403-W | DIS R.W. COREY |
| | |
| | |
| (EXAMPLE 3) | |
| 245-W | T.DS P.O. HUNT |
| | |
| (EXAMPLE 4) | |
| 321 G.A. SMITH | OK |
| MRS R.E. BLUE | 221 |
| | |
| (EXAMPLE 5) | |
| 500 QUEEN'S GRO. | NYC |
| | |
| | |
| NEW CONNECTIONS | |
| 275 JOHN JAMES | 207 N. MAIN |
| | |
| | |
| | |
| | |
| | |
| | |

**FIGURE TWO.**

In addition to the regular information records, it is desirable to maintain a ready reference list of frequently called numbers, such as hotels, stores, implement and automobile dealers, city and county offices, etc. Such lists must be kept up to date, and should include numbers of temporary importance, such as political headquarters; special events, such as fairs, etc. The names on the reference list should include *all* listings for the particular types of subscribers. If this is not practical, be sure that the list refers the information operator to other records for the complete list. If the information directory does not show cross reference to different spellings of similar sounding names, a list of such names may be kept for the guidance of operators to insure that a complete search is made. For example, the name Smith, may also be cross referred to Schmitt, Schmidt, Smitt, or Smyth.

### *Intercepting Service*

INTERCEPTING service is provided to furnish calling parties with information concerning changes in the status of the called number. At switchboard positions having a complete subscribers multiple, most of the conditions affecting the called numbers may be indicated by multiple markings and/or signal plugs, some of which will be self-explanatory, while others will require reference to a switchboard bulletin or to a book record.

Switchboard bulletins, generally consisting of a metal frame with card-like insert strips, 1/6 or 1/4 inch in width, are mounted as low as possible on the panel above the subscribers multiple. These bulletin frames come in various sizes, the most commonly used being 8 or 12 inches high and three or two columns wide and having a capacity from 64 to 144 insert strips.

Where the entries are to be hand written the 1/4 inch strip is usually used, and the 1/6 inch strip used when entries are made by typewriter. (The strips come as a scored sheet, which may be inserted in a typewriter before being detached.) The frames are mounted on a bracket which is inclined at a forward angle to provide easy reading. The frames can be lifted easily from the bracket for the insertion or removal of the inserts.

In general, one frame either two or three panel size, per position, is sufficient to accommodate all intercept listings. If the number of entries necessary exceeds the capacity of the bulletin during a normal directory period, it is recommended that intercept service be provided in a different way; specifically by trunking to a position provided with a book record of numbers to be intercepted.

However, even in larger exchanges. bulletins may be used at magneto rural positions. The listings on the bulletin frame should be grouped by hundreds, in numerical sequence reading from top to bottom. A crayon colored strip may be used to separate hundreds groups to aid in locating the desired reference. See *Figure* 2. Before any entries are made, the switchboard bulletin insert strips may be marked as follows:

A vertical line may be drawn from top to bottom, dividing the sheet of inserts into halves. In small offices.

where the number of new services is not large, a section of the lower portion may be reserved for new subscriber's listings. In other offices, one panel, or a portion of it, may be reserved for Emergency listings, such as the nearest office of the F.B.I.

At the top of the left hand column the world "Old" may be printed and at the top of the right hand column the word "New."

On the top strip of the space reserved for new connections, print the words "NEW CONNECTIONS." (See *Figure* 2.)

(a) Entries should be made on the switchboard bulletins when service orders requiring them are completed.

(b) The numbers of the stations affected should be arranged in numerical order. The old or incorrect number or name should be entered under "OLD" and the new or correct number and the code entered under "NEW."

(c) The codes most commonly used are as follows:
  (1) DS — Disconnect
  (2) T DC — Temporary Disconnect
  (3) N Y C — Not Yet Connected

The methods of showing the various conditions are illustrated in *Figure* 2.

NUMBER CHANGE: — Enter the old number in the column under "OLD." Enter the new number under "NEW." (*Example* 1.)

DISCONNECT: — Enter the number in the column under "OLD." Under "NEW," print the code "DS," and the subscriber's name. (*Example* 2.)

TEMPORARY DISCONNECT: — These may include telephones temporarily disconnected at the subscriber's request (vacation rate, etc.) as well as temporary suspension for nonpayment.

Enter the number temporarily disconnected in the column under "OLD." In the column under "NEW" enter the code "T DS" and the subscriber's name. (*Example* 3.)

DIRECTORY ERROR: — The entry to be made will depend upon the condition. For example, if two parties are listed by the same number, the number and the name of the subscriber correctly listed may be entered under "OLD" followed by the code "OK." The name of the subscriber

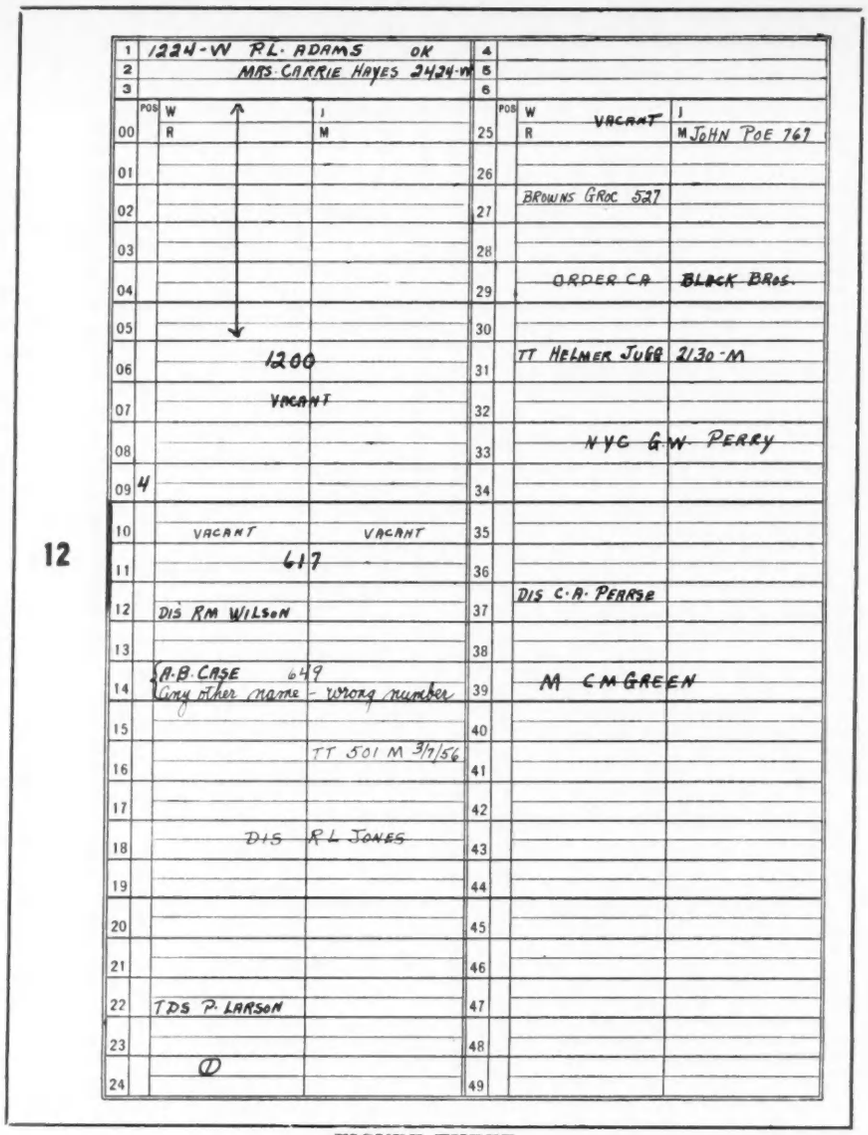



**FIGURE THREE.**

improperly listed may be written on the line below and his correct number entered under "NEW." (*Example* 4.)

ADVANCE LISTINGS: — These are cases where the subscriber's name and number appear in the new directory before the service has actually been established.

(1) Advance listing appears in new directory but has been cancelled and subscriber is receiving service over old number. Handle as a changed number. The number over which the subscriber is now receiving service will be considered as the new number.

(2) Advance listing — order not completed. Subscriber not receiving service over any other number. Enter "(number) (name)" in the column under "OLD." Under "NEW" enter the code "NYC." (*Example* 5.)

(3) Advance listing cancelled before the order is completed. Subscriber not receiving service over any other number. Enter "(number) (name)" in the column under "OLD." Under "NEW" enter "Order CA."

In general, book records should be used where the intercepting work is handled at desks or special positions. This method is recommended for offices where the sum of the entries (changes and disconnects, etc.) during a directory period normally exceeds 140.

In my company we use a loose leaf record page and binder manufactured by the Buchan Loose Leaf Records Company. Each sheet is indexed with the "hundred" or stile strip number of one hundred jacks. The sheet is divided into fifty numbered spaces on each side, numbering from 00 to 99,

the back of one sheet and the face of the one following constituting a bank of 100 lines.

Each numbered space is divided into four equal parts representing the four stations on a four party line, the corresponding party line letters being indicated at the top of each column. The party line letters W, R, J, and M have been selected because they are now being used by the majority of exchanges; if, however, different letters are in use at an exchange, the ones printed on the form should be crossed off and those in use written in their place. (See *Figure* 3.) (It is generally considered desirable to post changes involving stations on multi-party rural lines on a switchboard bulletin kept at the rural position, instead of entering in the intercept record.) Entries are made with pencil.

The various conditions affecting a station may be shown on the record in accordance with the examples given in *Figure* 3. All entries affecting the stations on a line will be shown in spaces directly opposite the number. Six spaces have been provided at the top of the form for entering information concerning particular changes that cannot be fully explained in the regular space. In using these spaces, the number of the line (1 to 6) on which the condition is explained shall be written encircled, thus (4) in the space representing the particular line or station affected. It is advisable, however, to confine the notations to the regular spaces, unless it is impossible to fully explain the condition there. The record should be kept up to date from the service orders completed.

Examples of various conditions and the method of entry on the intercept form are shown on the page indicated as *Figure* 3.

VACANT LINES AND STATIONS: — Indicate by the notation "Vac" or the word "Vacant." (Jack 07.)

WORKING LINES AND STATIONS: — One party lines not affected will be indicated by the absence of any notation. (Jack 08.) Four party lines having all parties working may be indicated by the numeral "4" being written in the "Pos" space. (Jack 09.) Two party lines having both parties working are treated as four party lines with two stations vacant. (Jack 10.)

UNDERLINED GROUPS: — Show as indicated in Jacks 00 to 05.

CHANGE OF NUMBER: —

(1) Change of number. Enter the new number in the space opposite the old number. (Jack 11) Note: In the event that a customer has his number changed more than once during a directory period, the number on which he is working should be written in opposite all previous numbers.

(2) Change of number accepted by subscriber on acount of wrong number calls. Opposite the old number enter "(name) (new number)" and the notation "Any other name, wrong No." (Jack 14)

Note: #Starting with the closing of a new directory, the date of the change shall be entered following the entry of the new number. This is in order that these entries showing changes that will not appear in the new directory may be easily distinguished and allowed to remain in the intercepting record after the issuance of the new directory. All other entries that are corrected by the new directory will be erased from the intercepting record when the directory is delivered.

TEMPORARY TRANSFER OF INWARD CALLS: — (In accordance with Company policy concerning the transfer of calls.) Enter "TT (number) (date)." The number shall be the one to which the calls are to be transferred. The period over which the temporary transfer is to remain will also be indicated if known. (Jack 16-j)

DISCONNECTS:

(1) Telephone disconnected. Enter "Dis: (name)." (Jack 18.) Note: Starting with the closing of a new directory, the date of the disconnect should be entered following the code "DS." (See also "Note" # above)

(2) Non-listed number of auxiliary group of lines disconnected. Listed number working. Enter "(listed number to which calls are to be transferred)." (Jack 06.)

TEMPORARY DISCONNECTS:—These shall include telephones temporarily disconnected at the subscriber's request (vacation rate, etc.) as well as temporary suspension for non-payment. Enter "T DS (name including extra listings) (date)." (Jack 22-R.)

DIRECTORY ERRORS:

(1) Two parties listed on the same number. Show the correct name followed by "OK." Also list the name and correct number of the subscriber improperly listed. (Jack 24-W.)

(2) Subscriber improperly listed in the directory by number of a vacant line. Enter "(name) (correct number)" opposite the listed number. (Jack 25-M.)

(3) Subscriber having an individual line is listed in error on a party line number or vice-versa. Enter "(name) (correct number)" opposite the listed number. (Jack 27.)

Note: Other conditions caused by directory errors shall be treated in a way that will make them perfectly clear to the intercepting operator and cause a minimum of annoyance to the subscriber. The numbered lines at the top of the sheet should be used where the space opposite the number is insufficient.

ADVANCE LISTINGS:

(1) Telephone number listed in advance. Order cancelled. Enter "Order CA (name)." (Jack 29.)

(2) New number listed in directory but not yet connected. Telephone working on old number. Enter "TT (name) (old telephone number)" opposite the new number. (Jack 31.)

(3) Telephone number listed in advance in new directory, but not yet connected. Not receiving service over any other number. Enter "NYC (name)" opposite the new number. (Jack 33.)

REASSIGNED NUMBERS:

Telephone number appears in current issue of directory, but listed subscriber has been disconnected and number reassigned because of shortage of facilities. In the space opposite the number, make the proper entry for the original number. (Jack 37-W.)

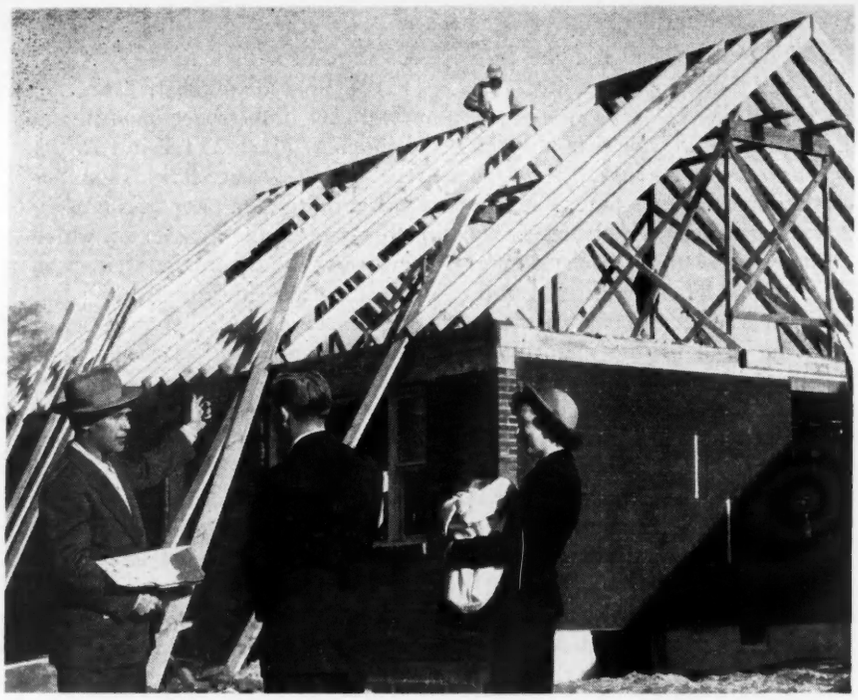
Note: The reassigned line should be marked for interception. The suffix "X" may be added to the subscriber's regular number as, for example, or 456-JX. It shall be understood by the operator that a call for a number including the suffix "X" should be completed and the marking ignored, but that a call for the same number not including the suffix "X" should be intercepted.

MOVES:

"Out" order completed in advance of "In" order. Enter "M (name)." (Jack 39.)

When a new directory is issued, the switchboard bulletins or intercepting record should be carefully checked

***Please Turn To Page 62***



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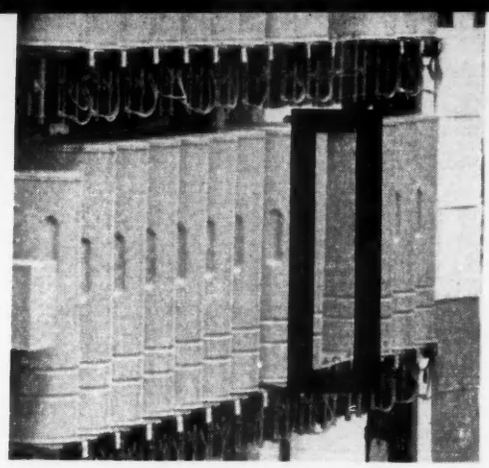

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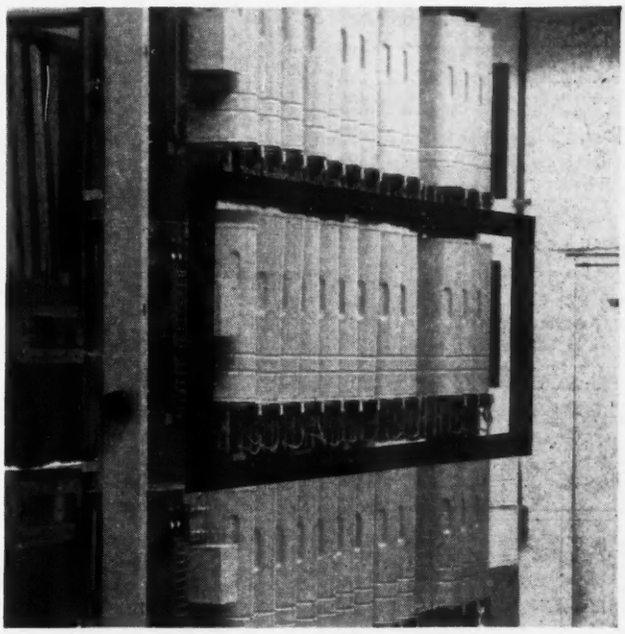

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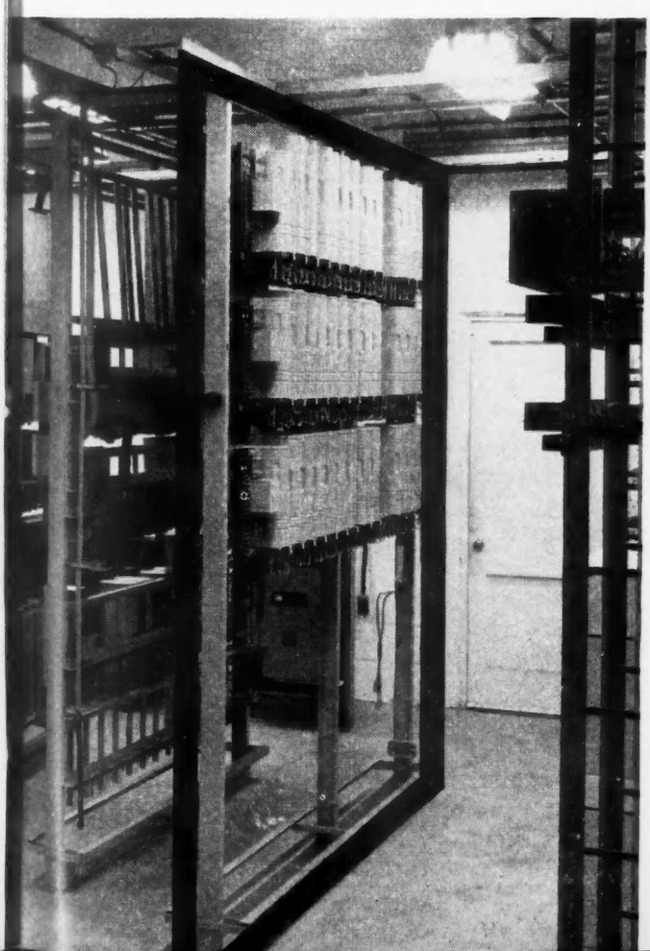

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with the new directory. Any directory errors should be noted and promptly entered on the records and the switchboard properly marked if the error would affect the completion of calls. All entries on switchboard bulletins or intercepting records that are made unnecessary by correct listings in the new directory should be removed.

MAKING ENTRIES IN CENTRAL OFFICE INFORMATION RECORDS:

In general, entries are made in ink except those where black pencil is specified until the directory is closed. After the directory is closed all entries are made in red ink, (except the black pencil entries) to indicate that these entries will not be taken care of in the new directory. The red entries are transferred to the new record with black ink. The black pencil entries are transferred to the new record using black pencil. (A directory "closes" when no more changes may be made in the manuscript, prior to publication.)

The wide column with horizontal lines, serially numbered is provided for the entry of new and changed listings and the line numbers constitute code reference numbers. The number of the line on which an entry is made is shown in the narrow column headed "Ref" to the left of the printed names, opposite the space where the new or changed listings would be located alphabetically.

When entering a code number, a line is drawn from the number to the space where the listing would appear in the printed section as a guide to the information operator.

The space to the right of the telephone numbers is provided to allow the entry of a new telephone number adjacent to the old number when a number is changed and also to make certain other changes.

*Additional* or *new listings* are written on an available line as near as possible to the space in the printed column where the listing would normally appear. *Example* 1.

*Alternate call number listing* — *Example* 2.

*Change of address* — a line is drawn through the old address and the new address entered on the nearest available line in the new listing column, showing the number of the line on which the entry is placed in the "Ref" column.

*Change of classification* — *Example* 4.

*Change of name* — a line is drawn through that portion of the old listing which is to be changed and the corrected detail shown on the nearest available line. *Example* 5.

*Change of number* — a line is drawn through the printed listing and the new number written in the adjacent column to the right of the old number. *Example* 8.

*Moving conditions* — a line is drawn through the entire listing — using a black pencil — and the code "M" (moving) entered to the left of the listing. *Example* 9. (When the telephone is later connected, the pencil entry may be erased and any necessary corrections made.)

*Removal of telephone* — a line is drawn through the listing and the letter "O" (out) entered immediately to the left of the listing. *Example* 11.

What's in a name? The very sensitive ego of the person who cherishes it as his own. Remember this as you take care with your subscriber's name records and know that you are winning friends for your service and your company.—***Ruth E. Richards.***


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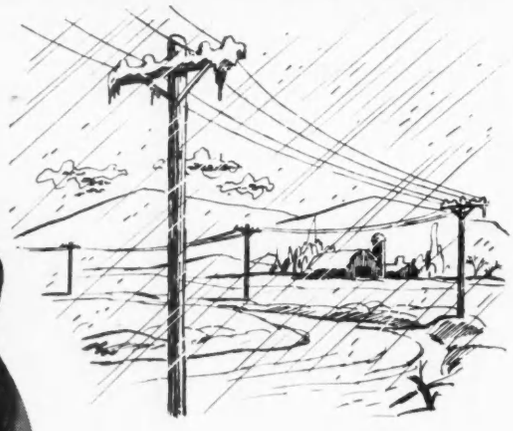

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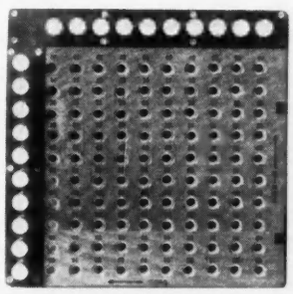

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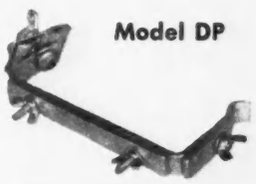

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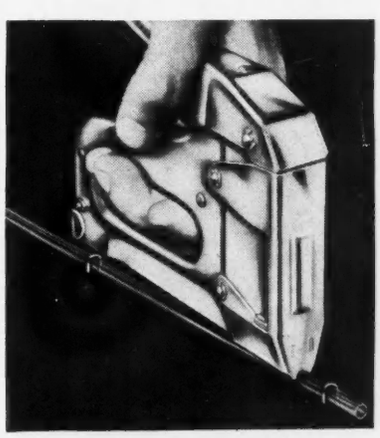

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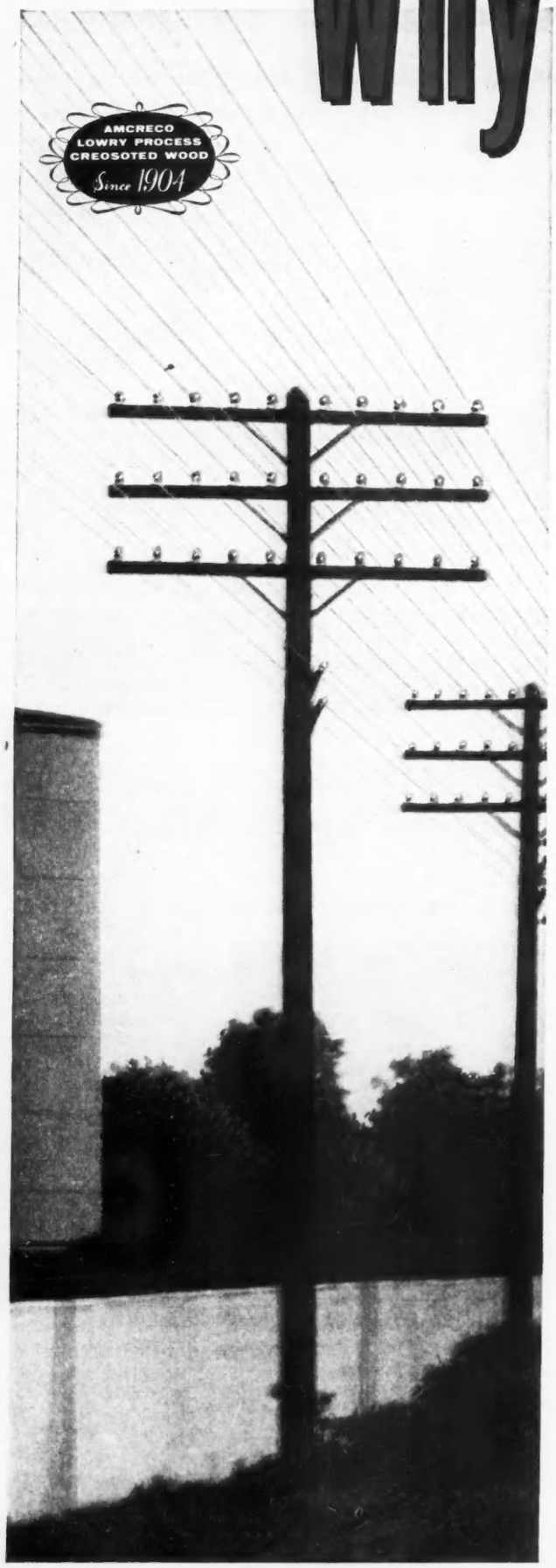


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# Questions and ANSWERS

Conducted by Jay G. Mitchell

**In this issue Mr. Mitchell discusses — (A) Factory Test for Receiver Units; (B) Volts to Decibels Conversion Graphs; and (C) Preliminary Cable Distribution Plan.**

***QUESTION:*** — *There is one feature of* TELEPHONE ENGINEER AND MANAGEMENT and FORTNIGHTLY TELEPHONE ENGINEER *that makes these magazines so valuable to the operating staff of small telephone companies such as this one. We are operating eight exchanges and have succeeded in getting our service to a high standard of excellence with corresponding, to us, satisfactory revenues and number of subscribers. The feature which we find to be so valuable in your magazines is the methods used in treating matters of plant and management, particularly from the standpoint of most of the personnel that makes use of the material.*

*Our people like to understand the technical basis of their work but in their everyday activity the absence of an unduly large number of complaints from our subscribers is taken to indicate that the service is reasonably good while a marked increase in the number of complaints is thought to be an indication of a defect in the plant or management that calls for intensive study and the development of a remedy.*

*The series on* The Decibel Calibration *has been most helpful because of its practical and easily understood character. We are very glad that it was published and our plant people have made some application of their understanding of this subject with good results. Can you state the minimum voice current alternating voltage that will result in satisfactory telephone reception. If this question cannot be answered as asked will you be so kind as to discuss it in an early issue to settle an argument.*

***ANSWER:*** — The practical answer to this inquiry is impossible in the sense that any value for the alternating current voltage which will result in satisfactory audibility of telephone transmission cannot be given without several qualifications. Moreover the qualifications that must be described are not constants either in time or value as will be pointed out. To begin with satisfactory audibility is a most indefinite term both as to its physical value and as to its occurrence and distribution. This will be recognized as one of the unknown variables that are always present for one reason because of the many degrees of impairment of hearing to be found among telephone users. In other words the term "satisfactory audibility" may be realized as far as the telephone plant is concerned but may not be satisfactory to the many telephone users who have more or less impaired hearing.

Then there may be superimposed alternating currents circulating in the telephone circuit involved which would affect a sensitive measuring device such as a high impedance voltmeter indicating the reception of a total of electrical energy sufficient in quantity but useless or even destructive to the transmission of a satisfactorily audible (understandable) signal.

It is possible, however, to determine the electrical energy that will *satisfactorily energize* the receiver mechanism of a telephone receiver. In the manufacture of telephone equipment the application of a pure sine wave alternating current of the proper frequency must satisfactorily actuate the telephone receiver when the impressed power through it is 0.000006 watt.

One manufacturer has called this figure the listening limit and it converts to Minus 22.2 Dbm. It is to be noted, however, that this is *not any indication* of the limit of audibility. When the subscribers begin to report unsatisfactory toll service to a certain telephone office in unusually large numbers, for illustration, it is well to assume that something is wrong in the toll connecting plant and to initiate a series of tests and inspections to determine the cause of the impaired service and to develop a remedy.

***QUESTION:*** — *Some time ago you published a graph of two curves for conversion of alternating current voltages to Decibels* (500 *Ohm Loop* 0.006 *Watt*) *and Decibels* (*Dbm.* 600 *Ohm Loop* 0.001 *Watt*). *We would like another copy of these curves if they can be again reproduced. The one copy clipped from the magazine is in poor condition. If available please print these graphs again.*

***ANSWER:*** — The Managing Editor assures me that this graph will be reproduced as requested. (*Please see page* 68.) It is our suggestion that you make a memorandum also of the equations for the two curves shown which are reproduced below:

Let "E" be the A. C. Voltage.

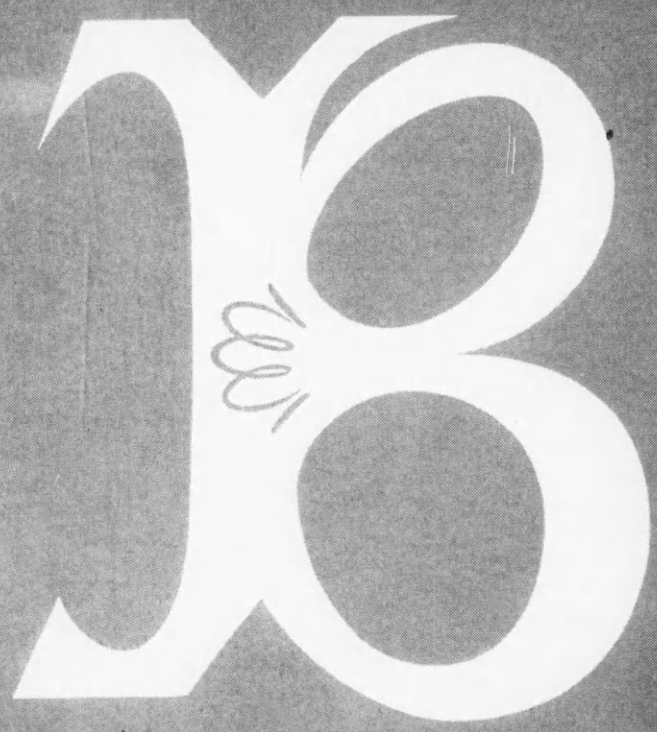
For the 500 Ohm Loop 0.006 Watt curve the equation is:

$$\text{Db. is } 10 \text{ Log. } \frac{E^2}{3}$$

For the 600 Ohm Loop 0.001 Watt curve the equation is:

$$\text{Dbm. is } 10 \text{ Log. } \frac{E^2}{.6}$$

***Please Turn To Page 68***



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Many times each day and night this spirit of service is expressed in some friendly, helpful act for someone in need. The courtesy, loyalty and teamwork that telephone people put into their daily jobs are a part of it.

Out of it have come the courage and inspiration that have surmounted fire and flood and storm.

We, the telephone people of today, are vested with the responsibility of carrying on this trust. It is human to make mistakes and so at times the job we do for you may not be all that we want it to be. But in the long run, we know that how we do our individual job and how we bear our individual responsibility will determine how we fulfill our trust.

For our business is above all a business of people . . . of men and women who live and work and serve in countless communities throughout the land.

BELL TELEPHONE SYSTEM

*(Concluded From Page 65)*

***QUESTION:*** — *We are making plans for the replacement of the Magneto Service Switchboard in one of our smaller exchanges and have started on the task of making maps of the area with the present and probable future subscribers' locations spotted. This is being done on large scale maps of the community and will be carefully worked out as you have suggested in previous answers to inquiries from the field.*

*When this preliminary mapping is complete we plan to lay out the new cable plant and any comments on the type of cable to be installed, the present wire is almost wholly open on cross arms, and will be almost entirely displaced by cable. We have also planned on placing our wires underground in the business district.*

***ANSWER:*** — No comment is possible based upon this very general preliminary plan of course. QUESTIONS AND ANSWERS suggests that the preparation of the map outlined be very carefully carried out and that the location of *every present and possible future* subscriber be shown. That means that every building lot in town and in the rural areas be shown. In the business district each location should indicate by some form of code just how many subscribers' must be provided for at that point.

In the making of the preliminary map actual routes for cable carrying pole lines may be left for the second step in the project. It is urgently suggested that this company arrange for the services of an expert when the next step is to be undertaken. At this time the type of cable may be determined and in this stage attention must be given to the "slip" in the distribution of the cable pairs in the terminals, the gauge of the cable conductors to insure the avoidance of excessive resistance in the longer circuits, the location of the end terminals for the cable and the other considerations that must be given careful attention. The employment of an expert at this juncture is not only advisable but it is necessary and will be the most economical course in the long run. If uncertain who to retain for this task consult your regular supplier or select some advertiser who is qualified to advise you.—***Jay G. Mitchell.***

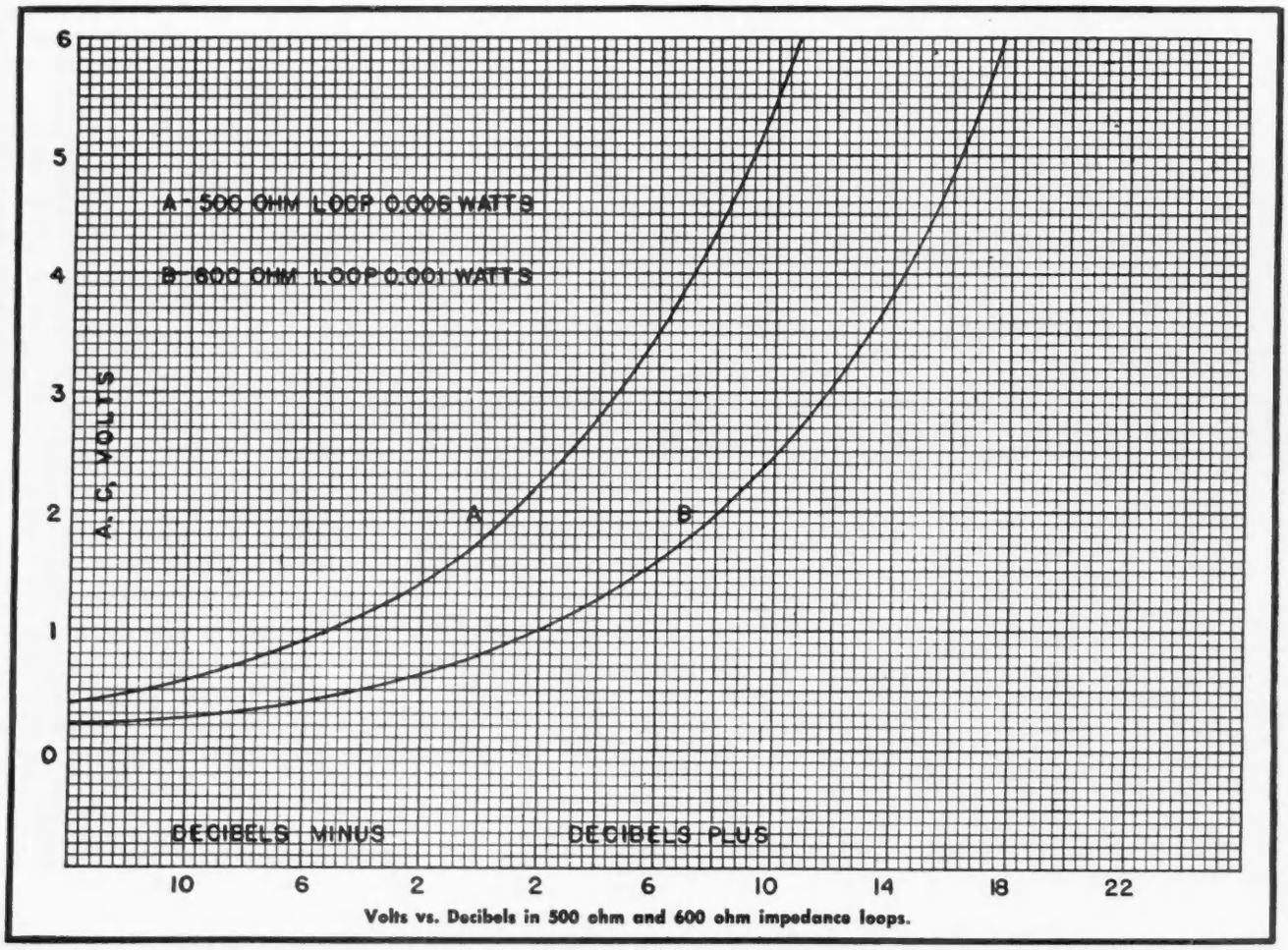
---

**Book Review**

***Transistor Audio Amplifiers. By Richard F. Shea. Published by John Wiley & Sons, Inc., 440 4th Ave. (Dept. TE&M), New York 16, N. Y. 231 pages, illustrated. Price $6.50.***

IN SEVEN years since transistors emerged from discovery shrouded in wartime secrecy, they have moved rapidly into commercial use. But many experienced engineers, even with backgrounds in vacuum-tube electronics, hesitate to use transistors because their knowledge of requirements is limited. This book offers these engineers the basic fundamentals of transistor applications at audio frenquencies.

Profusely illustrated with performance characteristics and typical circuitry, the book generally avoids higher mathematics. Necessary network theory is provided. And the effects of temperature, interstage coupling, and operating points are analyzed.




**Volts vs. Decibels in 500 ohm and 600 ohm impedance loops.**

# NEW EQUIPMENT and NEW METHODS

By John G. Reynolds

**TACKER designed for attaching various kinds of low-voltage wiring, including telephone station and ground wires . . . Alaskaug augers expedite "Operation 'DEW.'"**

## Tacker for Attaching Telephone Wiring

THE MARKWELL "L3" Telephone Tacker shown in *Figure* 1 is one of many products the Markwell Manufacturing Company of New York has developed for fastening materials. This tool is designed for attaching various kinds of low-voltage wiring, including telephone station and ground wires, to wood surfaces and, with longer staples, to plasterboard.

The Markwell Tacker is designed with the door, driver, and core grooved in such a way (*Figure* 2) that the regular flat topped staples used in the standard tackers will form a loop over the wire, holding it securely to the surface.

The method of using the tacker is quite simple. The tool is tipped forward at a slight angle as indicated in *Figure* 3 so that the groove at the front end fits closely over the wire being fastened. Pressing down the handle will trip the driver, forcing the staple prongs into the surface and forming the top of the staple closely over the wire. This close fit of staples over the wire will not damage plastic insulation and makes for a neat appearing installation .

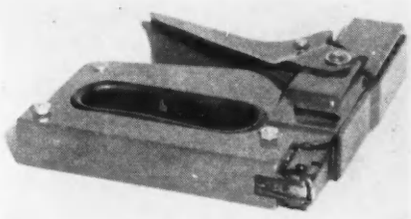


**FIGURE TWO: — Bottom view of Markwell "L3" Telephone Tacker, showing groove in door, driver, and core for shaping staple top over wire being fastened.**

**FIGURE ONE: — Markwell "L3" Telephone Tacker.**

The Tacker employs a front loading feature which makes it possible to clear any staples that may buckle and catch, and also assures easy loading. Only a few seconds are required to load a clip of 84 staples, enough to staple several runs of station wiring at one filling.

Eleven different staples are available as listed below:

"L3A Short" Steel (11/64" leg)
"L3A" Steel (1/4" leg)
"L3B" Steel (5/16" leg)
"L3M" Steel (7/16" leg)
"L3D" Steel (9/16" leg)
"L3B" Carbon Steel (5/16" leg)
"L3BTC" Tinned Copper Rustproof (5/16" leg)
"L3BC" Copper Rustproof (5/16" leg)
"L3MF" Carbon Steel (1/2" leg)
"L3D" Cement Coated (9/16" leg)
"L3DTC" Tinned Copper Rustproof (9/16" leg)

The 5/16" carbon steel staples are well suited for stapling station wires

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Photograph courtesy Lincoln (Neb.) Telephone and Telegraph Co. and Automatic Electric Sales Corp.

# CALCULAGRAPH *Company*

HARRISON, N.J.

THE STANDARD OF ACCURACY SINCE 1892


in inside runs where the wires must be attached to hard wood surfaces, while the 9/16″ steel staples will satisfactorily fasten wires to plaster board surfaces. The long staples will fasten 16-pair inside wiring cables to wood surfaces. For outside installations where the staples would be exposed to the weather is indicated in *Figure* 3, the 5/16″ or 9/16″ tinned

**FIGURE THREE: — Showing how Markwell "L3" Tacker is used to fasten outside run of telephone station wire.**

copper rustproof staples, depending on wire size, are recommended. These tinned copper staples will satisfactorily attach wires to ordinary wood siding.

The Markwell Tacker can also be employed for other fastening jobs, as for example, stapling aluminum numbers and letters to telephone poles using the tinned copper staples.

The Markwell Manufacturing Co. maintains a free repair service for its Telephone Tackers, thus assuring customers of a low maintenance as well as a low first cost of these tools.

### Alaskaug Augers Expedite U. S. Defense "Operation DEW"

"Operation DEW," Uncle Sam's "Distant Early Warning" project, is weaving a web of radar across the top of the Western Hemisphre. Among the problems faced by crews building the vast chain of outposts spanning the dismal arctic, is that of setting thousands of piling and poles in the flint-hard, permanently frozen tundra. This forbidding type of terrain, called "permafrost," is composed largely of silt, often containing highly abrasive quartz sand, and gravel, which is sometimes full of heavy cobbles up to 6″ in diameter, solidly

and permanently frozen in an icy mass.

Contractors working in Alaska learned long ago that conventional earth augers could not be used in permafrost. But fortunately they found an answer for this stubborn combination of ice and earth and had proven its successful performance by the time Operation DEW was launched. The innovation that made auger equipment usable in the far north is the "Alaskaug" All-Purpose Auger, a tool that cuts its way through frozen soil, hard packs, and most other difficult terrains including many solid rock formations.

This auger features a tapered helix of chrome-molybdenum steel with a series of heavy-duty cutting bits stepped around the edge of the spiral, and a hollow mill cutting head in lieu of the conventional piercing point. The drill head and bits are tipped with sintered tungsten carbide, similar to modern high-speed machine tools, to provide the toughest, most durable cutting edges known. The capabilities of the tool have been demonstrated in boring solid blocks of cast iron. In everyday field use the tool is regularly boring permafrost, coral rock, limestone, sandstone, and many other formations which heretofore have been "stoppers" for auger equipment.

The thousands of holes required for Operation DEW are being dug with Alaskaug Augers in various sizes up to 32". Piles and poles are set by freezing in place. To obtain water for this purpose, it has been reported, Alaskaug Augers are being used to tap the ponderous arctic ice.

The trackless wastes, fog, snow, bitter cold, and relentless arctic wind confront Operation DEW with supreme tests of men and equipment. Crews are isolated, completely dependent upon radio, planes, and LVT trains for communication and transportation. Construction men may well be proud of the job being done by men of their industry in this bleak arctic wilderness. Mr. Harold Latimer, Alaskaug president, said, "We are extremely proud and deeply honored to feel that our product is giving vital help to those courageous men fighting the arctic to make America more secure."

If interested in further information about Alaskaug Augers, contact: Alaskaug, Inc., 620 Keith Building, Cincinnati 2, Ohio.


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TWO-MAN
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**because it will do your line work *at less cost—quicker* and *safer.***

**With complete equipment it will dig the hole and set the pole, normally in a matter of minutes, all within full view and control of the truck operator, and—*the pole derrick is always ready for immediate use.***

**Backed by 61 years' experience and embodying skillful engineering and honest workmanship, the model 5000 WD body with equipment represents a truly outstanding investment.**

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*Irrathene ® irradiated polyethylene film, a General Electric product.

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New Superior "Super-Splice" makes the splice permanently as good as the cable. Write for details.

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# for top performance!

**NEW...IMPROVED**

# SUPERIOR TELEPHONE CABLE

## *contains a polyethylene tape* developed by radiation chemistry!*

**TOP PERFORMANCE** because the dielectric strength is doubled... *greater lightning protection!*

**TOP PERFORMANCE** because the capacitance of every pair of conductors is practically uniform... *simpler and quicker to splice!*

**TOP PERFORMANCE** because the insulation is "graded" to conductor sizes and conforms to REA Spec. PE14... *closely matches the universal transmission standards for loading coils and terminating equipment!*

And because SUPERIOR CABLE contains a tape marked at one foot intervals up to 10,000 feet, you are sure of the footage you receive and can measure the footage you use!

NEW, IMPROVED all-plastic SUPERIOR CABLE has resulted from recent developments in manufacturing techniques and better polyethylene compounds coupled with Superior's outstanding technological capacity. For *Top Performance* at less cost... order SUPERIOR CABLE today! For detailed information and prices, write

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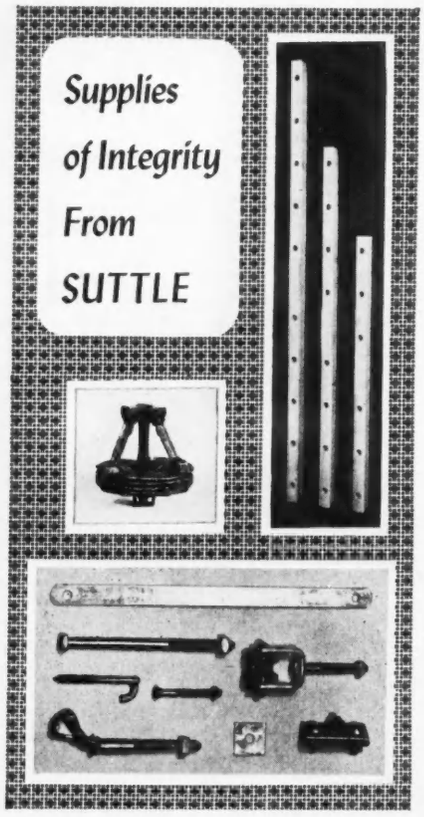


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**Pictured above is General Telephone Company of Ohio's new 170 foot microwave terminal and repeater radio tower with associated antennae. The Antwerp, Ohio antenna (left) is beamed at a microwave tower of the Home Telephone & Telegraph Co., Fort Wayne, Ind.**

# General of Ohio and Home Tel. & Tel. Complete Microwave Transmission System

By DICK ZACHMAN

MICROWAVE transmission, solution to an ever growing number of communication problems, went to work recently for the General Telephone Co. of Ohio when a Bryan-to-Fort Wayne microwave system was activated as a joint project between General Telephone Co. of Ohio and the Home Telephone & Telegraph Co. of Ft. Wayne, Indiana. More than 100 growing communities in that area will be affected by the new service provided by this installation of modern equipment, including the service between the two Ohio towns, Bryan and Antwerp, and Fort Wayne in Indiana.

The FCC sanctioned installation is the first microwave system used by a telephone company exclusively for the transmission of telephone messages in the state of Ohio. It is one of the first systems beamed across a state line to connect telephone exchanges in adjacent states.

Concurrently with the cutover to microwave, Antwerp, which is both a repeater and a terminal station, and the outlying towns of Hicksville and Payne were converted to dial service. Geographically, Antwerp lies approximately 23 miles southwest of Bryan with Hicksville being about eight to 10 miles due north of Antwerp and Payne.

A cable was constructed between

Antwerp, and Hicksville and Antwerp and Payne and all calls between Antwerp, Hicksville, Payne and Bryan are completed over the microwave channels between Antwerp and Bryan. All calls from the Bryan area, including Antwerp, Hicksville and Payne to Ft. Wayne, are now completed with the microwave circuits between Bryan and Ft. Wayne.

There are many advantages to going to microwave, according to officers of General Telephone Co. of Ohio. The most important, they say, is the service which will be offered. The initial installation will more than triple the number of circuits previously available only with wire.

Continuity of this service will also be improved since microwave has a high degree of reliability and the beam is not vulnerable to sleet.

According to General, the equipment plus installation costs about two-thirds as much as comparable wire facilities. Reduced maintenance costs are expected to substantially increase the cost differential.

While the FCC has issued call letters for the radio network, subscribers can place or receive calls on the system to or from any place in the world without being aware of the microwave connection. Unlike television and radio stations equipped with similar communications equipment no maintenance engineer will be required on duty at any of the various exchanges. This ruling is based upon the fact that the public is not directly involved in the use of the microwave equipment.

Basically the equipment consists of a tower, parabolic reflector, transmitter, receiver, and carrier assemblies at each point. Two reflectors are located back-to-back at Antwerp, midway point between Bryan and Fort Wayne.

The system was arranged initially for a capacity of 48 channels with a possible expansion to 72. Information now available permits expansion of the system to 240 channels over a single radio unit. The equipment is designed to permit eventual expansion of 360 channels when subscriber demands require this. When the cutover was completed, 15 direct channels from Bryan to Fort Wayne were in service. Between Bryan and the Antwerp repeater, 22 channels became operative.

The basic radio transmitter assemb-


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**If you're an Electrical Engineer, with a high degree of skill and imagination in any of the twenty-odd fields listed right, we believe we can offer you the most promising opportunity in America.**

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Illustrated above is No. 11 Tree Pruner with center cut action by tempered steel blade that easily handles 1" branches. Head is reinforced malleable iron. Spruce poles with telescoping aluminum joints. For heavier work No. 12-18, capacity 1½". Also Pole Saws.

*for clearing brush . . .*

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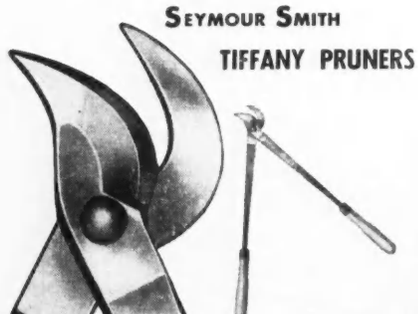

Hand forged throughout. Fast and easy double cut action with thin blades shaped to "draw in." Improved bolt and nut joint, through handle and riveted grip fastening.

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ly is composed of three separate units consisting of modulator, converter, and power output panels. The transmitter modulator panel accepts the output of the associated carrier or channelizing equipment and uses it to phase modulate the frequency of an oscillator. The modulator is crystal controlled and operates on a phase shift principal.

The transmitter converter consists of mixer and amplifier used to convert the output of the transmitter modulator to in integral submultiple of the final radio frequency which is also crystal controlled.

The output channel is frequency multiplied through three stages of amplification. The last two stages use disc-seal triodes operating in re-entrant cavity circuits. This panel accepts and multiplies the signal to the final 900 megacycle band output frequency. The nominal power output to the antenna is 5 watts into 500 ohms.

The radio receiver assembly consists of a converter and a demodulator which constitutes a double-conversion crystal-controlled superhetrodyne receiver for wide-band multiple channel operation on the 890 to 960 megacycle band.

The miniaturized carrier channelizing system is designed to both convert audio to radio and radio to audio so that the signal frequency can be modulated for transmission or reception.

Since the microwave system works on a line-of-sight principal, due consideration was given to the type and location of towers at the Fort Wayne and Bryan terminals as well as the Antwerp repeater and terminal. The Bryan to Fort Wayne airline distance is approximately 45 miles while the Bryan to Fort Wayne via Antwerp is approximately 47 miles. Antwerp is located at approximately the half way point, but for technical reasons, does not lie in the direct line of transmission with the two other towers.

Terrain in the Bryan-Antwerp-Fort Wayne area is practically flat tableland with many small groves of trees. Because of the extremely flat condition of the territory and possible chances of icing conditions during winter months, it was decided to install a 150 foot tower at Bryan and a 170 foot tower at Antwerp. A 200 foot tower was also installed at Fort Wayne due to its location in the downtown area of the city.

Both location and continuation of uninterrupted service played a large part in the selection of Blaw-Knox towers. In Bryan a 150 foot self-supporting tower was installed behind the company's central office. It has been designed according to standard specifications and will withstand wind velocity in excess of 80 miles an hour

**CLARE E. WILLIAMS, president of General Telephone Co. of Ohio places the first (official) call via microwave, from Antwerp to Donald C. Power, president tative WILLIAM H. RYCHENER, Pettisville; State Senator DELBERT L. of General Telephone Corp. in New York City. Left to right are: State Represen-LATTA, of Bowling Green; BASIL BARITSKI, secretary of P. U. C. O.; Mr. Williams at phone; State Representative WALTER GARDNER, Bryan; and FRANK J. BAKER, general superintendent, of the Home Telephone & Telegraph Co., Ft. Wayne, Ind.**

and a coating of one-half inch of ice, according to Blaw-Knox. It is a square cross section. The location of the tower in Bryan was so desirable that building re-arrangements were made on company property.

At Antwerp, a fall-free tract of land for the 170 foot B-K guyed tower was selected. Because the dial exchange is unattanded, except for routine visits, location out of the business and residential districts was permissible for both the tower and building. This tower is located on the northwest side of Antwerp which places it on both the Bryan and Fort Wayne sides of the village. The building was placed 60 feet from the base of the tower. This tower is also designed for the same strength as the Bryan tower.

The Fort Wayne tower also located in the business section, as in the case of Bryan, is a 200 foot, self-supporting Blaw-Knox tower. Three rings encompass the top section of this tower so that additional reflectors can be mounted for multiple-channel use.

The Antwerp repeater has 10 foot reflectors mounted back-to-back, one facing Fort Wayne and the other Bryan. The Bryan and Fort Wayne towers carry single ten foot reflectors zeroed on the Antwerp parabolas.

Due consideration was given to airports as listed by the civilian aeronautics authority. This information was used to establish working height of the towers. It was found that it was not necessary at the present time to light either the Bryan or Antwerp towers, in accordance with CAA specifications.

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## US Purchasing Guide Ready in New Edition

PUBLICATION OF a new and expanded edition of the "U.S. Government Purchasing Directory," a complete guide to the military and civilian purchasing activities of the Federal Government, was announced Jan. 28 by Wendell B. Barnes, Administrator of the Small Business Administration.

The Directory lists some 4,000 classes of commodities covering the more than 5,000,000 items purchased by both the military and civilian agencies of the U. S. Government.

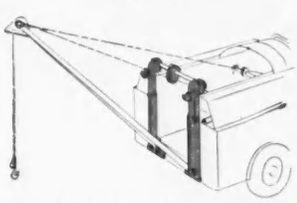
The 89-page Directory is on sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., for 50¢.


# Fold Up Your Derrick from Inside The Cab!

## with the *Tel-E-Lect* STORAGE KIT

Derrick raised by simply engaging the winch.

Vertical position—winch rotation reversed.



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**You know what a tough job** it is to assemble an "A" frame derrick—and to put it away after use. Now Tel-E-Lect has a simple solution with a real dollar saving in time on the job—a saving of space on your trucks—and a saving in many hours of back-breaking and hazardous work for your men.

**The patented Storage Kit** fits any standard utility truck body and "A" frame derrick and it can be quickly bolted on the back of your truck by your local mechanic. The derrick will go up or down in a minute or less, entirely controlled by the man in the truck cab. Working with a double drum winch, you get live boom operation—or easily adjustable derrick elevation with a single drum winch.

**The cost** is only a fraction of other, more intricate derrick storing systems—and there's no rebuilding of your present equipment!

**So,** while you're thinking about it, drop a line to Tel-E-Lect for diagram and price. It's sensational!

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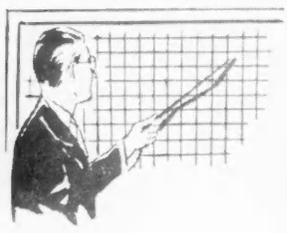


# telephone ASSOCIATION activities

## Oregon Association Stages Toll Dialing Symposium

■ SALEM, ORE. — The Oregon Independent Telephone Association's symposium on Customer Toll Dialing, held at the Marion Hotel, Salem, Ore., was a successful innovation. The Oregon Association is the first Independent telephone association to attempt a meeting on such a scale for the specific purpose of studying one particular facet of telephone development, as presented by the manufacturers of the essential equipment.

The credit for organizing an unusually interesting affair goes to a special committee of the Association, consisting of L. E. Scott, Linn County Telephone Co., Lebanon (chairman); Gaylord E. Baker, Rose Valley Telephone Co., Scappoose; and L. E. Brown, Interurban Telephone Co., Silverton.

The meeting lacked, purposefully, many of the more pleasurable aspects of a normal association convention. It was a strictly business-like affair for those who wanted to know more about the latest developments in Customer Toll Dialing and automatic toll billing.

It is a measure of the keen interest in the subject that nearly 200 people from all over the continent attended the symposium and that there was a capacity audience at every session. The symposium was set up primarily as a presentation of their various methods and equipment by the four Independent manufacturers now in the market with working Customer Toll Dialing systems. In addition, various aspects of the Independent operating viewpoint were expressed by telephone company officials.

At the opening of the meeting, John Dillard of Nehalem Telephone & Telegraph Co. and president of the Oregon Independent Telephone Association, and Lester E. Scott, Linn County Telephone Co., chairman of the symposium committee, made brief introductory remarks.

The presentation of the Kellogg Switchboard & Supply Co. was introduced by Kay C. Tompers, Pacific Coast division manager.

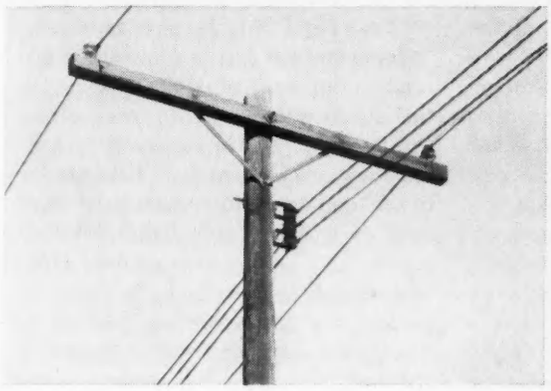
Robert G. Cass of the Federal Telephone & Radio Co., who made the presentation for Kellogg Switchboard & Supply Co., opened his talk with a short explanation of the history of the International Telephone & Telegraph Corp., its development of Automatic Toll Ticketing equipment in Belgium in 1935, and the building of this equipment for European companies since that time. Mr. Cass went on to explain further the method of operation of the International research centers and laboratories in London, Antwerp, Zurich, Stuttgart and Clifton, N. J. It was outlined that Federal had developed two basic systems, one a complete AMR system developed and working in the Laboratory at Nutley, N. J., a second system developed by the Engineering Department at Federal Telephone & Radio Co. which was explained by George Hasser.

Mr. Hasser explained the operation of the "simplified version" of Federal's Automatic Ticketing System which was operating on display. He explained the common equipment which would operate throughout the system, the use of the routing selector, and the method of recording the data on a punched tape. The function of the ticketing repeater was explained and the use of the tape puncher and the scanner.

Under the "simplified version," the subscriber wishing to make a toll call dials an access prefix which directs the call to the routing selector, the subscriber then dials his own number which is recorded on the

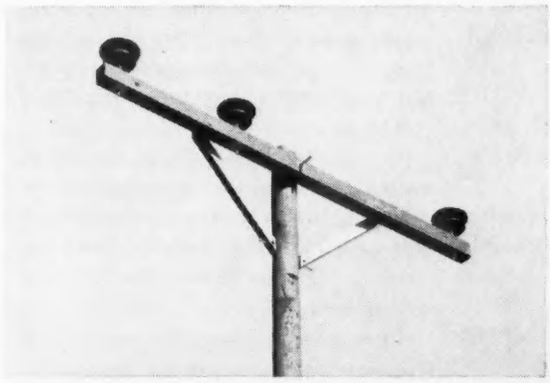
**Nearly 200 persons attended Oregon Association's toll dialing symposium.**

**IN 1939,** the first pressure-creosoted crossarms were installed on poles of the Monongahela Power Company.



**IN 1936,** the first pressure-creosoted poles were installed on Monongahela lines. Mr. Wayne Lawler, Special Representative Transmission and Distribution, points to the dating nail on this still serviceable veteran.

**IN 1956,** because of past performance records, pressure-creosoted poles and crossarms were standard specification for Monongahela.



## Here's Proof of Performance...

# "Pressure-creosoted poles and crossarms provide us with lowest annual cost of any available timber."

The Monongahela Power Company, Fairmont, West Virginia, first used pressure-creosoted poles in 1936. Today they serve 200,000 customers in an area of 12,596 square miles and have 307,000 utility poles, of which 252,000 are pressure-creosoted. Some of these poles are in use on a 1560-mile line which carries 22,000 to 132,000 volts. The power requirements in this part of West Virginia have doubled during the past 10 years.

Mr. S. S. Russell, Senior Lines Engineer, explains why Monongahela Power has standardized on pressure-creosoted poles in sizes of 60 feet and less. "This practice has been established because the performance of creosote treated structures has exceeded the predictions upon which its use was commenced in 1936. On our new 13-mile, 33,000-volt line in Pendleton County, W.Va., we are using pressure - creosoted poles and crossarms exclusively."

United States Steel will be happy to give you more data on pressure-creosoting with USS Creosote. Just get in touch with our nearest Chemical Sales Office or write directly to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

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SALES OFFICES IN PITTSBURGH, NEW YORK, CHICAGO, CLEVELAND, SALT LAKE CITY AND FAIRFIELD, ALA.

**UNITED STATES STEEL**

**Scru- Tite anchors**

are not affected by atmospheric conditions. No corrosion or deterioration. Cold flows. A fraction of the weight of metal anchors. Drill hole, then hammer it home. A new line of expansion anchors available soon. Write for information.
Available in 10 sizes, and in several assorted lengths. Millions in use.
Immediate delivery on all standard screw size anchors.

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punch tape. He then dials the called number or if necessary, a routing code which is also recorded on the punch tape. The date and time of connection and disconnection are recorded accurately on the tape, thus all the essential basic information for the billing of this toll call is now available on a punch tape. This system provides economically and accurately only the basic information. If there are requirements for additional data, these can be included in this system but naturally every additional requirement is obviously going to increase the cost.

Mr. Cass explained the Laboratory AMR model with its line and station identification features

At the afternoon session, presided over by D. O. Hood, general manager of Columbia Utilities Co., W. R. Jarmon, president of General Telephone Co. of the Northwest, made the opening address.

Mr. Jarmon began by stressing the benefits of this meeting in acquainting Independent telephone people with customer toll dialing.

"In recent years," he said, "strong population shifts, such as the surge towards the West and Southwest, have been experienced in this country and have created a demand for better rail, highway and air transportation and new industrial development. All of these things have resulted in a shrinkage of our nation's boundaries and a decentralization of its industry. The telephone business must keep up with national trends and meet the new requirements imposed by such profound changes. This can be done only with a speedier, more direct service such as customer toll dialing."

"Basically," Mr. Jarmon reported, "telephone men are in the business to render the best possible service to their subscribers at a reasonable profit. They are in business to sell telephone service, and what is easier to sell than an improvement in service such as customer toll dialing? Companies which have offered this type of installation have actually done so to improve their service, but as a result they have generally received a substantial increase in volume of business. Because the subscriber receives the added conveniences of a speedier connection and privacy of conversation with direct dialing, he tends to make more extensive use of his telephone. These conveniences also mean much in improving the company's public relations."

He further pointed out that providing nation-wide communications which are an ever-increasing credit to our country is the common endeavor of both the Bell System and the Independents.

"Because the longer haul toll routes are predominantly Bell," he stated, "their's (Bell) is the major problem in furnishing nation-wide toll line switching facilities to tie in their points and connect with Independent company points. The Independents are engaged largely in originating and terminating traffic and transmitting calls to near-by points. In the beginning their participation in nation-wide toll dialing may mean starting with local area dialing based on traffic volumes, taking care to coordinate activities with the Bell System so that eventually the network will fit into the national pattern. The most important thing at present is to move ahead in an orderly fashion, consistent with the telephone requirements of the public and developments in the art of telephony. Meetings such as the Oregon Independent Symposium on Customer Toll Dialing evidence the Independents' great interest in this timely subject."

Stromberg-Carlson Company's presentation began with a discussion of the company's toll dialing system by J. D. Confeld, toll ticketing engineer, who discussed fundamentals of toll ticketing, defined the type of traffic which can be served by customer toll dialing equipment, explained the information which must be recorded.

ROAD-BLOCK

WONDER IF WE CAN EVER GET BY ?!
EXCESSIVE TAX RATES
CAPITAL GROWTH FUNDS and INCENTIVE TO RISK
ECONOMIC PROGRESS INCREASE IN JOBS WAGES & GOODS

and described some of the methods used by Stromberg-Carlson to accomplish this recording.

L. A. Hodson, toll ticketing engineer, concluded the Stromberg-Carlson presentation with a study of charts showing the economies to be effected by the installation of customer toll dialing.

Discussing the subject from the point of view of the operating company, L. Gray Beck, chief engineer for West Coast Telephone Co., spoke on "Engineering and Plant Considerations" in connection with the establishment of direct distance dialing. His talk was based on his company's experience in a network, involving 19 exchanges, which is to be placed in service next Fall. He stressed the point that although initial installations might not include all necessary or desirable features, they should be so planned that these features could be incorporated at a later date; also, that there is no fixed rule of thumb to be followed when considering the installation of ticketing equipment, but that each case must be considered and studied on its own merits.

Six general considerations apply to any contemplated installation.

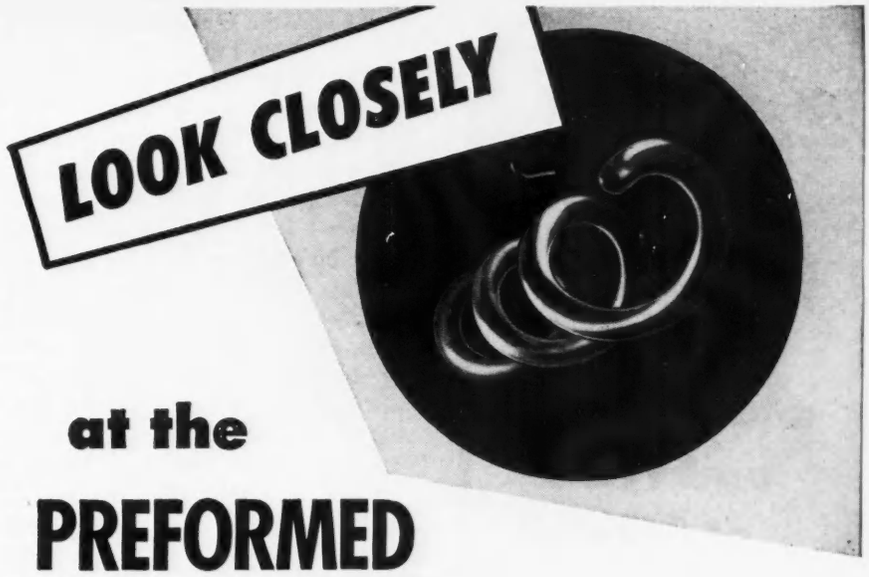
First, a decision must be made as to the type of system to be utilized. Should it be a local area type or a foreign area type, and should it employ subscriber, operator or automatic calling telephone identification?

Secondly, the location of the ticketing equipment must be well thought out, not only from the standpoint of space in an individual office, but from the standpoint of one master installation serving a number of tributaries.

The third requirement is to make a traffic study of calls to be handled by the ticketing equipment. Such studies should be forecasted to beyond the anticipated installation date so that equipment quantities, toll and trunk circuits can be adequately provided. In this connection, stimulation of station-to-station traffic and subsequent subscriber attempts must be given careful consideration.

Fourth, after the determination of circuit requirements, careful coordination must be effected so that the necessary plant and equipment are available when the system is placed in operation.

More generous traffic tables must

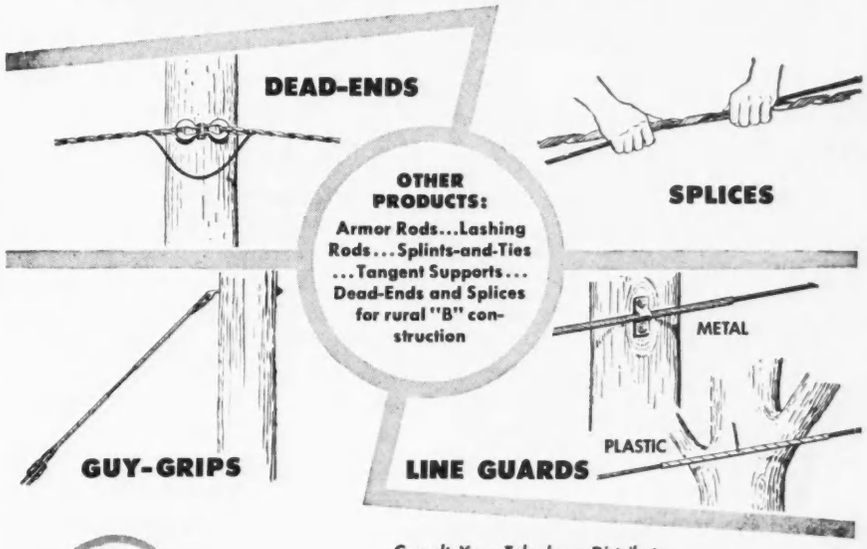




a major advance in line accessory fittings

The Preformed method of producing line accessories is an exclusive new development for the telephone industry. It incorporates the use of Preformed Rods—helically formed within exacting tolerances—to serve varied "fitting" functions all along the line. No more bolts—no compression tools—simplified construction. More than just something new, Preformed Products represent a better, faster and more economical way to *dead-end, splice, support,* or *protect* conductors and strands.

For more information on their exclusive advantages, consult your telephone distributor.

A COMPLETE LINE FOR THE TELEPHONE INDUSTRY...

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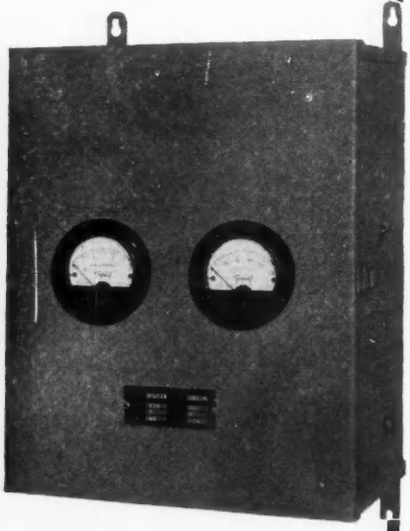

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be used in the estimating of circuit requirements for this service than for operator-handled calls. Then, too, a determination must be made as to whether separate trunk groups will be established for access to the ticketing equipment and to the operator, or whether combined trunk groups would be more desirable.

Fifth, in securing bids from the manufacturers for ticketing equipment, care must be exercised to be certain that manufacturers' bids are for similar types of operation and that equipment quantities are the same.

Sixth, even though standards as set by the Bell System may not be met initially, plans should be made toward the ultimate meeting of these requirements from the interest of standardization. These standards include "2-5" numbering, prefix names, access codes, intercept, alarms and the elimination of tandems to end offices.

Other considerations involve information service, pay station restrictions to the ticketing equipment, the provision of flash and tone supervisory signals, and the provision of an adequate toll train. The question of intercept must be studied and consideration given to the use of recorded intercept. Equipment purchased should be designed so that as new developments occur it can be modified without extensive alterations.

Equipment should also have features incorporated so that necessary traffic information can be secured to determine the adequacy of the equipment. Also, in this connection, suitable equipment component identification should be provided so that trouble can be more easily located. The matter of customer education and personnel training needs to be well thought out.

Mr. Beck concluded by emphasizing that consideration of automatic ticketing equipment cannot be a casual affair, but that it requires very careful planning in all respects. He further suggested that manufacturers might look closely to the electronic computing industry to find better ways of providing services now done mechanically, and that there is a need for a better means of party line identification than is now available. He also pointed out that a means for handling operator identification type of ticketing equipment from a remote location would be desirable.

The afternoon session was followed by a "hospitality hour" that constituted another interesting innovation. The four manufacturers—Automatic Electric Co., Kellogg Switchboard & Supply Co., North Electric Co., and Stromberg-Carlson—whose presentations made up the bulk of the program, acted as joint hosts.

The opinion was generally expressed that this was an excellent idea that might be followed to advantage in regular association conventions, where separate entertainment is usually the custom.

At the dinner, held in the Gold Room, Earl Dean, manager of the Oregon-Washington Telephone Co., made a witty and competent toastmaster. The introduction of guests revealed that eleven states were represented, as well as Canada, and Alaska. Of 184 registered for the symposium, 82 were from Oregon, 45 from Washington, 29 from California, 10 from Canada and Alaska and 1 from Illinois. One distinguished visitor was from Teheran—P. A. Yekta, director of the Telephone Company of Iran.

Following the dinner meeting, the evening session began with an impressive description of his company's "Experiences in Customer Toll Dialing" by Allan R. Stacy, vice president and general manager, Sunland-Tujunga Telephone Co.

Mr. Stacey said that five years of operating experience showed him that Customer Toll Dialing, as compared to manual methods, is more reliable, more accurate, more pleasing to the subscriber, more satisfying to management and less costly per message handled. Automatic machine billing he had found to be more accurate and reliable, to have a greater capacity for volume and to cost less per message billed.

He felt that Extended Area Service is not the answer to any expansion problem that can be met with Customer Toll Dialing. Extended area service results in a stimulation of 250% to 400%, requiring much additional circuit and special terminating and switching equipment, whereas such stimulation with Customer Toll Dialing is less critical because the revenue increases proportionately to the stimulation; "CTD" makes short haul toll traffic profitable.

Mr. Stacey showed that since the

installation of automatic ticketing in 1951 his company had increased from 2,940 to 4,140 working lines in 1954, with the addition of only one central office equipment employee; the number of lines per employee had increased from 588 to 690. In the period 1950 to 1954 the number of customers billed had increased 50% to 7,200, while the number of employees had been reduced 46%.

He discussed in detail his company's billing and collections experience. The adoption of automatic ticketing had reduced the uncollectible ratio, that is the proportion of uncollectible revenue to gross billing, from 0.43% in 1051 to 0.33% in 1954.

Good customer relations were indicated by the low percentage of requests for credit. In the first three months of 1955, 2215 claims were made in respect of 276,491 messages, or 0.8%. Of these claims, less than one-half were allowed, 0.34% of the total messages.

Mechanical errors in automatically prepared tickets were low, only 293 in a total of 994,188 tickets. Billing challenged by subscribers showed a sharp comparison between automatic and manual operation. In 1949, with manually typed toll statements, 7.71 tickets in every 1,000 were challenged by subscribers. In 1954 with fully mechanized billing there were only 0.93 challenges per 1,000 tickets.

The presentation of the Automatic Electric Sales Corporation consisted of a discussion and demonstration by Leonard L. Ruggles on the subject of "SATT Systems Today."

D. O. Hood, Columbia Utilities Company, presided over the Saturday morning session, which opened with a presentation by the North Electric Co.

D. C. Dye, regional manager, introduced W. H. Blashfield who discussed and demonstrated the North Electric Company's system of automatic toll ticketing.

The program concluded with a presentation of Bell System and Oregon area plans for Direct Distance Dialing by John D. McLennan, plant extension studies engineer of The Pacific Telephone and Telegraph Co.—***By L. D. Gritten.***

## General of N. W. Announces New District Headquarters

TEKOA, WASH. has been selected by General Telephone Co. of the Northwest as the site for its new district headquarters. Division manager Walter S. Taylor stated that the growth in company business and operations in the area during the past few years warranted the partitioning of the company's Southern division into two separate districts. Tekoa was chosen as the headquarters of the northernmost of the two districts because of its central geographic position and because it is also the operator control office for all long-distance calls between communities in this area.

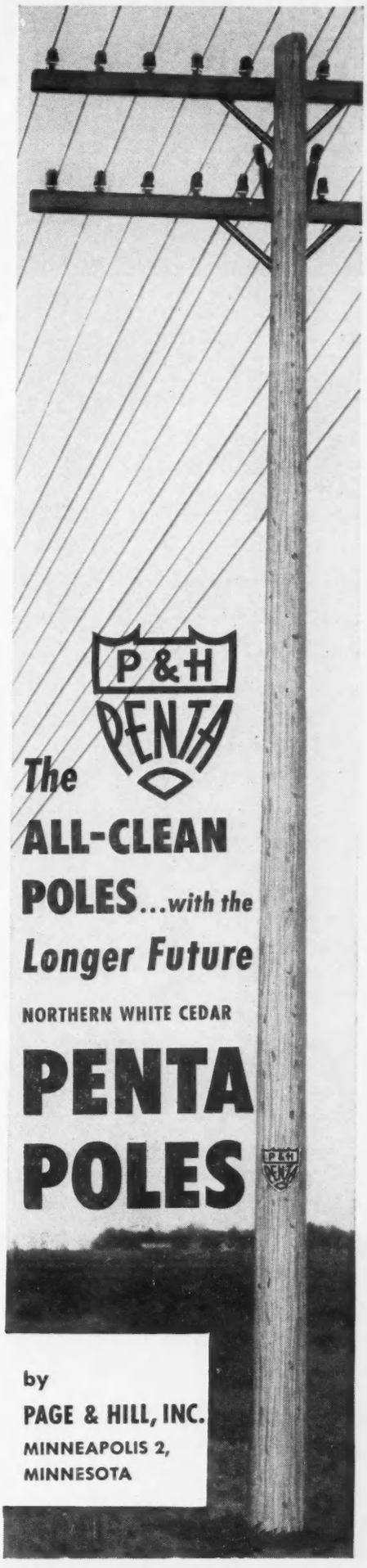
Taylor explained that General of the Northwest's operating territory is divided into four divisions of two districts each. The other district in the Southern division is the Moscow-Pullman area, with headquarters at Moscow where the division offices are also located.

He pointed out that effective January 16, Tekoa became the controlling point for all company operations within the district, which includes the communities of Tekoa, Rockford, Fairfield, Latah, Rosalia, Oakesdale, Farmington, Garfield, Malden, Plaza, Waverly, Mt. Hope, Pine City, and Thornton in Washington, and Worley, Plummer, St. Maries, Harrison, Benewah, Tensed, Emida, Santa and Fernwood in Idaho.

With the establishment of the district headquarters, additional company personnel have been assigned to the Tekoa office. Dan C. Peterson, former local manager of the Pullman office became district manager, and Robin Adair, former division plant manager at Moscow, was named district plant supervisor.

Peterson, the new district manager, is a 1950 graduate of Washington State College in business administration. Before being named to head the Tekoa district operations he had been at the Pullman office since May of last year. Prior to that he had been an accountant in the company's general office in Spokane since joining General of the Northwest in 1953.

Adair started with the company as a groundman in 1929 and after a period in other employment, returned to the company in 1937 as a lineman, serving variously at Coeur d'Alene, Pullman, Moscow and Libby, Mont. He was transferred to Waterville, Wash., in 1941 and promoted to com-



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- **New small insulator**
- **Button, button**
- **Power plus for PBX**
- **Profitable noise**
- **Self-supporting**

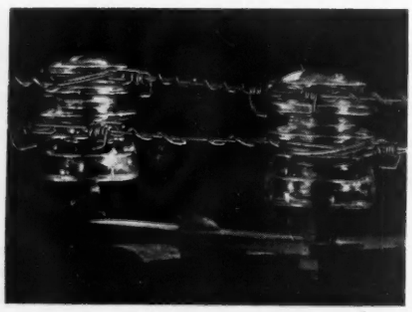
Published every month to help you get the most out of your materials and supplies dollar

*by C. J. Reynolds, Stromberg-Carlson Company*

The few dollars you spend on *reliable* equipment today will be repaid a hundredfold in lower maintenance costs for years to come. Protect your investment with the double guarantee offered by Stromberg-Carlson. First, leading manufacturers build this equipment, and guarantee it. Second, because we recommend and sell this equipment to the telephone industry, we *also* guarantee its performance!

### Smaller, lighter insulator for point transposition

Weighing almost 25% less than its predecessor, the Hemingray Number 56 insulator has several important advantages. It's grooved just right to hold wire firmly. It's small and easy to install. Requires no special hardware, and goes on standard pins.

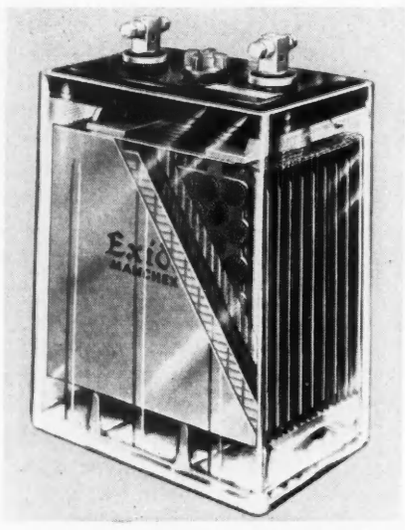


You'll get years of reliable service from each Hemingray insulator, because they are unaffected by sudden or seasonal temperature changes, do not age or deteriorate. All surfaces are, of course, impervious to moisture.

For faster line work on rural lines, this one-piece insulator can save you installation time, and maintenance costs.

### Lead buttons mean lower costs

Only Exide Manchex Batteries have the positive plate with the buttons of corrugated lead tightly locked in the lead alloy grid several times more rigid than pure lead. Because of this outstanding design, the plates resist the mechanical strains bound to develop and retain their shape without growing or buckling. There is an ample reserve supply of pure lead which can be converted into active material as needed.

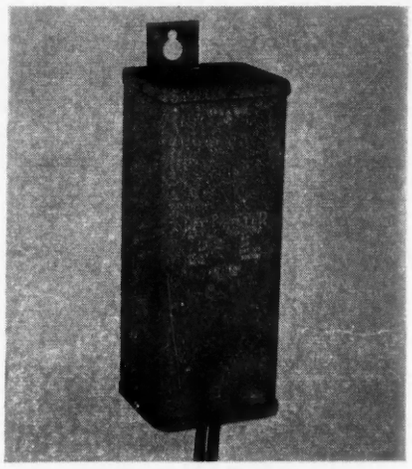



Special construction gives long life to Exide Manchex Batteries.

These and many other features combine to insure exceptionally long, trouble-free service.

### Keep your PBX customers happy with this dependable power unit

A steady, economical supply of DC power is one of the things you need for an efficient PBX—and a happy PBX customer.



Money-saving RectiFilteR*.
"Just plug it in and forget it!"

With no moving parts, the Raytheon RectiFilteR requires neither adjustment nor maintenance. It will outlast many sets of batteries, release wires carrying charging current from central office to subscribers' PBX boards for revenue producing service, and minimize power cost because of high efficiency in converting from AC to DC.

Dry disc rectifying units and other components are designed for long-life, trouble-free service. The Raytheon RectiFilteR will end your telephone power problems.

*Reg. U. S. Pat. Off.

### Noise can be money!

Take a business subscriber who has a telephone in some extremely noisy location—and who has finally decided to do something about it. Would you rather have him spend money in building a soundproofed booth—or give **you** the money as monthly income on a telephone which completely licks the noise problem?

The GAI-PHONE is such an instrument. It has a special transmitter that actually creates a "Zone of Quiet" around the handset—even in a spot as noisy as a boiler factory! It costs the subscriber less than a

booth—and you get the revenue!

**Distribution wire needs no cross arms**

There are several reasons you can enjoy lower installing costs with this Whitney Blake multi-pair distribution wire.

Because it's self-supporting, it needs no cross arms. And it's easy to string because it's lightweight and comes in long lengths—up to 4000 feet per reel.

Self-supporting distribution wire has built-in messenger.

This wire has excellent electrical characteristics: low-loss transmission, low capacitance, high dielectric strength.

Its polyethylene insulation provides excellent weather resistance.

The wire is available with 6, 11 or 16 pairs of conductors. Each conductor is protected by a polyvinyl chloride covering.

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binationman, later serving in this same capacity at Wenatchee and Wallace.

He was transferred to Coeur D'Alene in 1947 as a construction foreman, later becoming a line foreman. He was sent to Moscow as plant chief in 1951, where he has been stationed until his recent appointment.

## Northern Ohio Names Kinsel Assistant General Plant Supt.

COLONEL WM. C. HENRY, president and general manager of Northern Ohio Telephone Co., Bellevue, Ohio, has announced the appointment of O. F. Kinsel, as assistant general plant superintendent in charge of cable planning and construction.

Mr. Kinsel's employment with Northern Ohio Telephone Co. dates back to 1927. He has been stationed at Elmore, Port Clinton, Delaware, and Bellevue, and has served as lineman, construction foreman, cable splicer, and plant engineer. He has held the latter position since 1948.

The new superintendent has been most interested in cable construction and with his sons perfected and patented lead spacers which are used in spinning cable.

## American Standards Assoc. Honors A. D. Knowlton

A. D. KNOWLTON, Bell Telephone Laboratories, Inc., New York, was honored by the American Standards Association recently in recognition of his work in the development of American Standards.

Mr. Knowlton represents the Telephone Group, comprised of The Bell Telephone System and the U. S. Independent Telephone Association on the Standards Council of the American Standards Association. The Council is responsible for the technical program of the ASA.

He is one of about 80 representatives of national technical societies, trade associations and consumer groups holding membership on the Council.

The citation read: "The American Standards Association presents this certificate in recognition of contributions to the establishment of voluntary standards and in appreciation of sound advice and devotion of energy to the furtherance of the standards movement as a means of advancing the national economy."

The Standards Council is the judicial body of ASA, which acts in the public interest by assuring that all standards projects are national in scope and representative of all groups concerned with the subjects of proposed standards.

The Standards Council has approved 1500 American Standards in a wide variety of fields: civil engineering and construction, safety, mechanical engineering, electrical engineering, photography and motion pictures, chemicals, mining and metallurgy, rubber, drawings, textiles, gas-burning appliances and others.

The American Standards Association is the national clearinghouse for voluntary industrial and consumer standards. It is a federation of 115 trade associations, technical societies and public interest groups. There are also 2300 companies affiliated as members.

## Canadian Bell Seeks Right To Increase Debt

DIRECTORS of the Bell Telephone Co. of Canada will seek authorization of shareholders to issue one or more series of bonds, debentures or debenture stock to a maximum amount of $100,000,000 at the annual general meeting of shareholders in Montreal on March 8th.

A company announcement said not more than $50,000,000 of debt securities is to be sold in any one issue.

In a letter to shareholders, Thomas W. Eadie, president stated:

"The company continues to grow with vigor . . . I believe that you will want the directors to have the freedom of action they need to carry out our future financing in whatever manner may be in the company's best interest.

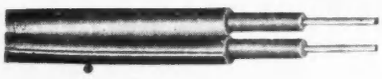
"At the annual special and general meeting of shareholders to be held on March 8th, the directors will ask that the shareholders approve a by-law authorizing them to issue one or more series of bonds, or other debt securities, to a total principal amount of $100,000,000 to be issued from time to time as needed."

Approval of the proposed by-law would require a two-third majority vote of the shareholders.

## Columbian Gov't Names Meek to Advisory Post

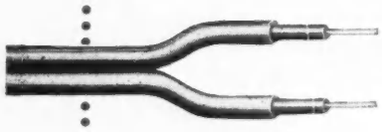
T. J. MEEK has been appointed technical advisor on Telephone Trans-

ENDURPRENE
Drop Wires



Twisted Pair

Parallel Reinforced



Parallel Figure 8

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mission to the Colombian Government in Bogota, Director General Ricardo Julio Rengifo of the Empresa Nacional de Telecomunicaciones has announced. Mr. Meek, at present on leave of absence from Radio Engineering Products Ltd., of Montreal, has been for the past two years managing its wholly owned subsidiary, the Alberta Northwest Telephone Co. in Edmonton. During the time he was in Edmonton he was instrumental in organizing the Alberta Section of the Institute of Radio Engineers.

Immediately after graduation from the University of Toronto in 1943, Mr. Meek was associated with the crown company Defence Communications Ltd. in providing a vital war time communication network on the Eastern Seaboard. Shortly after the war he joined fast-growing Radio Engineering Products Ltd., and was appointed sales manager in 1950.

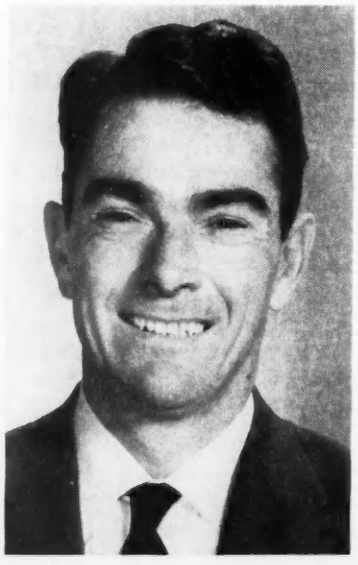
Of recent years he has been much in demand by the NATO forces in Europe for whom Canada through Radio Engineering Products Ltd. has been the sole supplier of mobile communication centres.

**Appointment of JOHN D. BENEDITO (above) as general sales manager, Bakelite Co., Union Carbide & Carbon Corporation's plastics division, has been announced by C. W. Blount, vice president in charge of sales. Mr. Benedito joined Carbide in 1935, following his graduation from Yale. He succeeds H. K. Intemann, who has been named executive vice president of Electro Metallurgical Co., also a division of Carbide.**

## Appointments Announced For Two IT&T Divisions

THE FOLLOWING APPOINTMENTS were made at a recent meeting of the board of directors of International Telephone & Telegraph Corp., for two of its divisions, Federal Telephone & Radio Co., Clifton, N. J., and Federal Telecommunication Laboratories, Nutley, N. J.

Joseph A. Frabutt, general sales manager for FTR, was appointed vice president, with headquarters at Los Angles. He will be in charge of



**ARTHUR W. BARNES (left) has been appointed manager of North Electric Company's Line Supply Warehouse at Atlanta Ga., according to an announcement by D. F. Snyder, sales manager. Mr. Barnes has a broad experience in the handling of outside plant materials. He has been with North several years, first in the sales department and later as Manager of North's Galion warehouse. The Galion warehouse will now be managed by IVAN E. RULE JR., (right). Mr. Rule was formerly local manager at Seville, Ohio for Northern Ohio Tel. Co.**

all operations and production at the new factory being built there for FTR's Pacific Division. The first unit of the new plant is scheduled for completion early in 1956.

Andre G. Clavier, a technical director in charge of FTL's commercial research and development program, is now vice president in charge of the same work.

Brig. Gen. Peter C. Sandretto (U. S. Air Force Reserve), formerly assistant vice president of FTL, is elected vice president, continuing the direction of military research and development.

Dudley M. Day, who has been secretary, treasurer and counsel for FTL, has also been named vice president of the laboratory division.

## Keeping Up

*(Concluded From Page 51)*

service under state commission jurisdiction[2]. The other state is Texas[3].

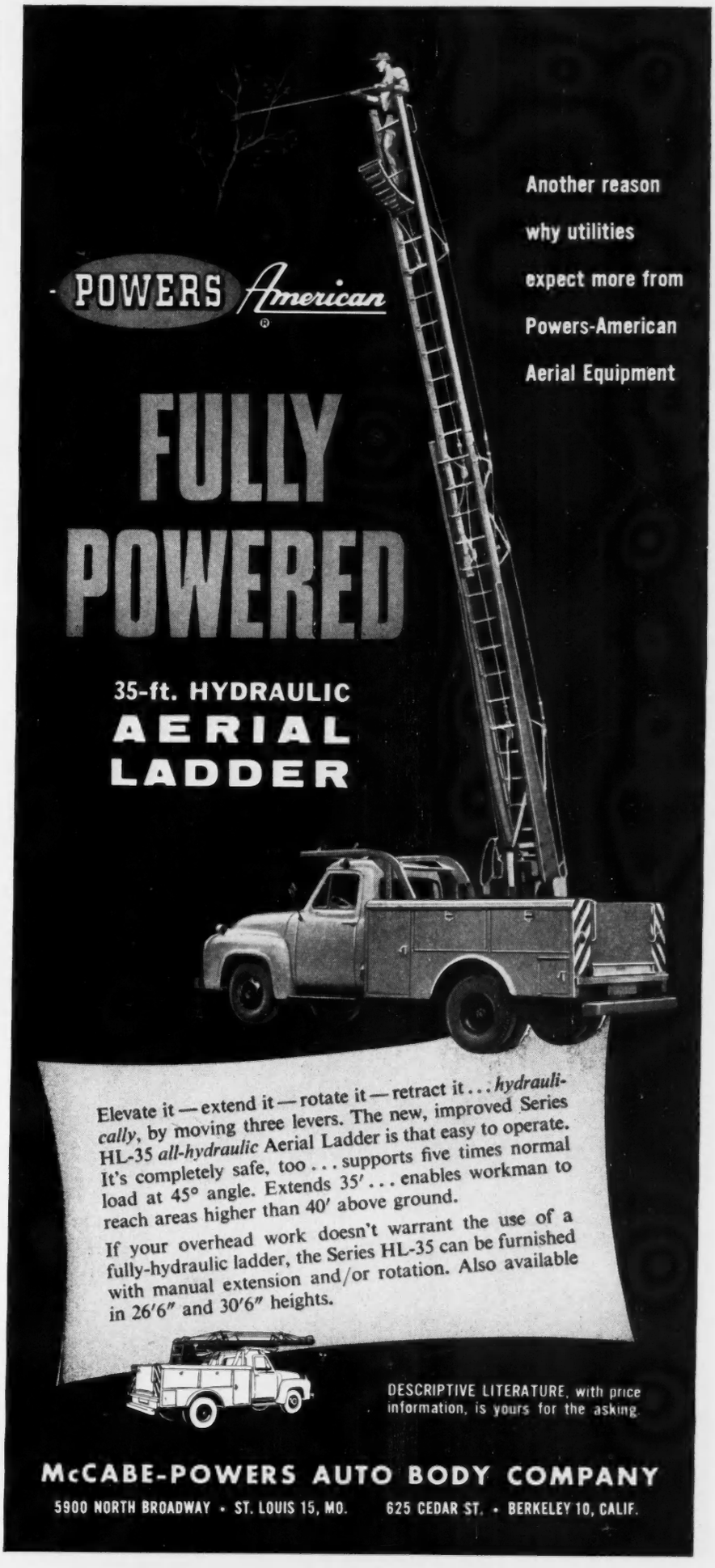
### *Employment Trends*

THE HIGH level of employment throughout the country reported on August 9, 1955, jointly by the U. S. Department of Commerce and the U. S. Department of Labor, is not without its effect on the telephone industry. Total civilian employment reached an unprecedented 65 million in July, about a million above the previous record set just one month earlier. Some 5 million persons have been added to the employed total of this country since February of 1955, as compared with an average spring and summer rise of 3 million in the 1947 to 1954 period.

Nearly all of the job increase between June and July, 1955, took place in nonagriculture activities. As a result, unemployment—which is normally stable in July—went down by 200,000. The unemployed total is almost a million lower than a year ago. Furthermore, fewer of the current unemployed are skilled or semiskilled industrial workers.

It is normal to expect that as the labor market gets tighter, employe turnover tends to increase. Furthermore, when qualified prospective employes are in short supply, competition for their services generally becomes keener. Under these conditions

[2, 3] *See page 42 of reference No. 6 in appended Selected Coroborative Reading list.*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# The Tester

He probes and checks the telephone equipment —takes a last look before it's ready for use. Making certain that "things work" is his important duty in producing good telephone equipment which will serve well in Bell central offices all over the country.

Like the lineman and the operator, the tester lends his special skills and talents to help achieve the common goal of the telephone industry... providing better telephone service for America.

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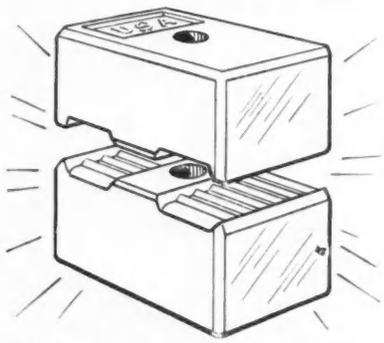

Made of highest quality dry-process electrical porcelain . . . Porcelain Products telephone insulators assure long, continuous service . . customer satisfaction. Porcelain Products, Inc. has served the telephone industry for 62 years, offering a complete line of insulators that meet AT & T and REA specifications . . . simplifying installation . . . reducing maintenance. Write for complete information, today!

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there may be temptation to relax customary minimal standards when hiring new personnel.

In any event, the inevitable and recently increasing movement of the country's more useful and skilled employes, creates employment and training problems new to some companies at a time when more experienced and more competent workers are needed to cope with expansion problems and technological advancements.

Those companies who, in the relatively recent past, hired only "experienced workers" are facing an awkward situation today in some areas of the country. To be specific, these companies are face to face with the necessity of teaching — practically from the ground up — new employes their duties in adequate detail and within a reasonable period of time for the first time since World War II.

Utility organizations are not immune from these nation-wide trends. Consequently they, too, face similar situations. For example, one of the leading magazines in the electric light and power field reported on July 15, 1955, the following: "A Labor Department survey showed extensive training activity in Nation's electric power industry, especially in larger power plants . . . Surveyors found in 500 major utilities some 5,600 apprentices (most learning to be linemen) and 3,275 other workers in training, but said 'the industry as a whole still has a big job to do to meet its skilled worker needs.' "

The official news release on which this editorial announcement was based was dated June 27, 1955, and it concluded by stating that the need for additional skilled workers, particularly linemen, is reflected by the large proportion of apprentices to journeymen employed by many companies. The average ratio, the survey shows, is one apprentice to about every four journeymen linemen.

### *Training Linemen*

TRAINING programs used to develop new linemen are well established in a number of telephone and power utility companies. Some of these companies, working in cooperation with various educational organizations, including the State Boards for Vocational Education, have produced well-organized, up-to-date instructional programs including even training courses for the instructors themselves.

A typical example of the practical results of this commendable teamwork is the publication by the Kansas State Board for Vocational Education, Topeka, Kansas, of the "Study Guide to Accompany 'The Lineman's Handbook.' "

The present version of this study guide applies to the second edition of The Lineman's Handbook which is one of the generally used textbooks for such courses. The Lineman's Handbook was written by Edwin B. Kurtz, professor of electrical engineering at the State University of Iowa.

The recently-printed third edition of this handbook was reviewed on page 25 of the September, 1955, issue of FORTNIGHTLY TELEPHONE ENGINEER wherein it was pointed out that the handbook's size has been increased by about 50 percent to 790 pages and includes over 1,000 illustrations.

The Trade and Industrial Education Board for Vocational Education of the State of Illinois has prepared a very useful instructor's lesson guide for teaching electrical construction and maintenance work performed by utility and outside electrical workers. This outline divides construction tasks into 56 job types while the maintenance section includes 92 types of jobs.

Well-planned lesson guides keep the whole program "on the beam" by confining the teaching to what the apprentice must do and what he must know in order to perform the operations in a safe and satisfactory manner. Because so much has already been done in organizing and implementing such programs, it will be found advantageous to make use of existing training material whenever possible.

To complement the lineman's training texts mentioned so far it is desirable to make generous use of telephone construction and maintenance supply catalogs to acquaint the new plant employe with the vast array of items used to build and maintain telephone plants. Keying this illustrated descriptive information into the appropriate place in the training course will expedite an understanding and visualization of names and terms of parts used in this division of telephone work. Ingenious co-ordination

of material of this sort will increase the interest of the new employe in both his job and the training course as well as make the training effort of more direct and immediate benefit to himself and his company.

To be most effective, this organized training aproach to developing new plant employes must receive careful thought in the planning stage. That is, to make work methods immediately applicable on the job, the information on certain items in a general supply catalog may be considered to be too condensed for detailed instructional guidance.

For example, the catalog section on solder and soldering tools may require amplification for teaching other important points to inexperienced workers. This soldering-teaching program can be enlarged upon by securing from the individual manufacturers authentic, detailed instructions for the care and use of each type of soldering device and solder.

A typical example of such available information is the 78-page booklet entitled "Solder — Its Fundamentals and Usage," which can be secured from the Kester Solder Company. Properly dovetailed with associated instructional matter this subject can be one of the keystones in a worthwhile basic training program for telephone plant men.

Similarly, useful supplemental reference data for both instructor and apprentice alike will be found listed and reviewed in the 16-page section of TELEPHONE ENGINEER'S 20th edition CATALOG-DIRECTORY OF INDUSTRY SUPPLIERS which includes not only tried and tested textbooks but also a representative listing of safety publications as well as an interesting selection of manufacturers' literature on a variety of subjects.

### *Apprenticeship Programs*

THE BUREAU of Apprenticeship includes in its list of apprenticeable occupations, under the classification of telephone worker, the following jobs: Cable Splicer[4], Central Office Installer-Repairman[5], PBX Installer[6], Combination Man[7], and Lineman[8]. The customary term of apprenticeship for these skilled occupations is 4 years of work experience on the job through employment, supplemented by appropriate related trade instruction. The length of related classroom instruction is norm-


the CHANCE "Blackfoot"

holds more—
goes down faster

CAN BE INSTALLED BY MACHINE
TO CUT LINE CONSTRUCTION COSTS...

KING SIZE THIMBLEYE

The extra large eye of the Chance Blackfoot accommodates a turning bar big enough to make hand installation easy, and fits all hole boring machine adapters.

PITCH CONTROLLED

This accurately pitched, fast cutting blade really goes down fast. Every size anchor is individually "pitch controlled."

Give the GUY a CHANCE

Recently, a Florida utility company saw how it could save money in two ways on anchor installations. To cut materials costs, this company used *only one* Chance 15 inch Screw Anchor. To cut labor costs, these Chance Screw Anchors were installed by machine. Added together, these savings reduced to a fraction, what this company formerly paid out for guying. And pull tests showed no creep at 22,000 pounds on their installations! You can save money too—specify Chance Anchors for your guys.

SMALLER HUB

The smaller hub on Chance Screw Anchors means less friction—easier installation. Less earth is disturbed during installation. That's why the Blackfoot has greater holding power.

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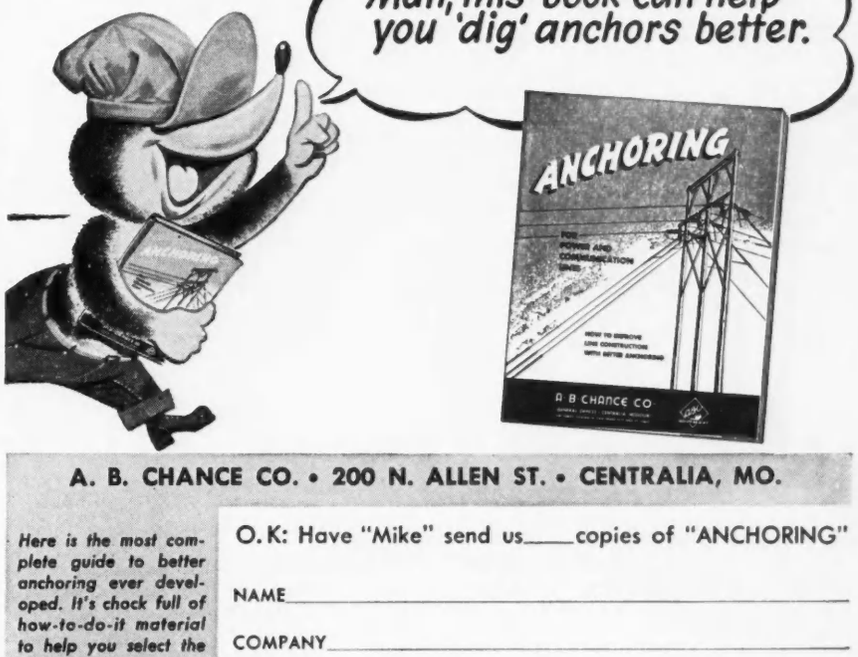


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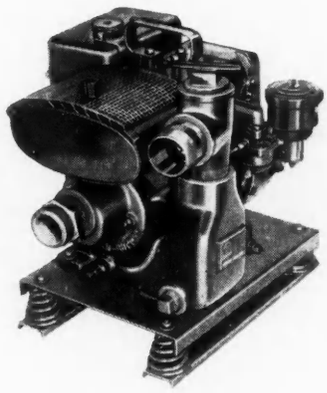

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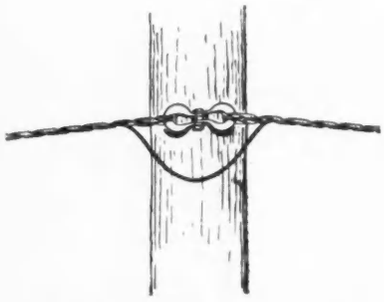
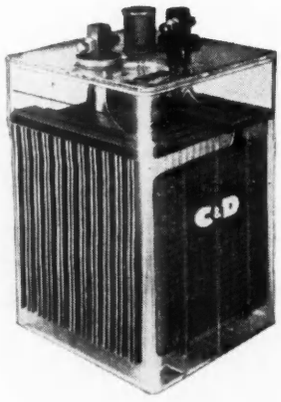
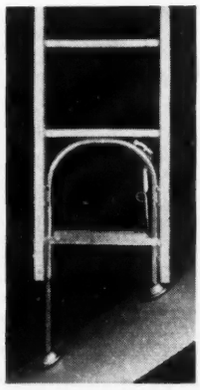


**Preformed Dead-Ends** for self supporting plastic cable. Both long and short dead-ends available. Easily applied without the use of special tools. Merely slip one leg through a standard hardware thimble clevis and wrap the legs around the cable. PREFORMED LINE PRODUCTS CO.




**Extra-Long Life!** — The suspended and supported plate construction is an exclusive feature of C&D BATTERIES. Choose C&D's PlastiCal (lead-calcium grids) for life expectancy of 25 years. For 14 years expectancy, specify PlastiCell (high tensile lead alloy grids).



**Ladr-Levl,** -A leveling safety device for extension A-frame and straight ladders. Fully mechanical, keeps your ladder always level on slopes, steps, irregular surfaces. Levels instantly, locks automatically. Interchangeable feet available. Made by HB INDUSTRIES, INC.

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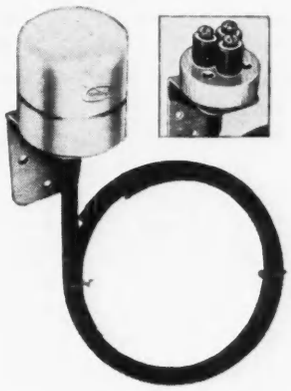
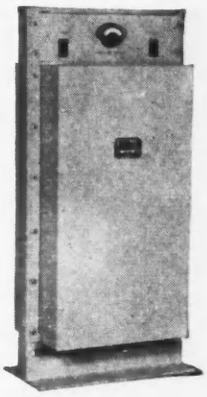
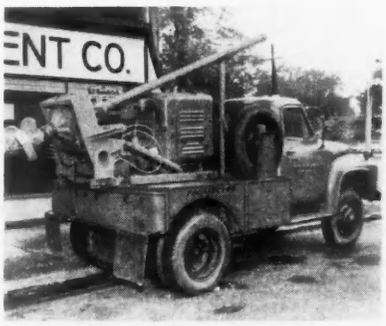


**The Cook Hy-Cap Power Cross Protector** is designed for use where there is a possibility of contact between communication circuits and power circuits. It also will furnish considerable protection from lightning damage. A product of COOK ELECTRIC COMPANY.



**Automatic Constant Voltage Charger**—operates without moving parts. Compensates for changes in input voltage and load. Single-Phase Flotrol in the 24 and 48 volt types are available in range of sizes from 1 to 24 amperes. LORAIN PRODUCTS CORP.

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ally about 144 hours per year or 576 hours for the 4-year period.

This part of the instructional program generally requires that the apprentice study from textbooks, or their equivalent, the basic principles and recommended practices applicable to the work, blueprint reading, safety and labor laws, industrial relations, and the historic and economic background of the trade. Naturally, this essential studying produces better results if it is carried on in a systematic manner. Other things being equal, good study habits increase the value of an employe. To this end, those whose study habits are rusty can usually benefit from a review of one of several available sets of suggestions for improving study methods. One of these is a helpful, inexpensive 34-page pamphlet entitled "Studying Effectively," by C. G. Wrenn and R. P. Larsen, published by the Stanford University Press, Stanford, California. Two major questions which may confront an industrious student, regardless of age or the subject, are answered by this manual: (1) What are my study weaknesses? and (2) How can I improve my study methods?

Most of the formal apprenticeship classes consist of about ten apprentices at a time. Different companies can group like apprentices to secure the minimum number needed to qualify for a formal class. However, inability to organize a minimum-sized class should not deter or unduly complicate getting the training job done because the basic principles, techniques, texts, and demonstration materials used for training a group are no different than those required to train one man. Thus, the established patterns are applicable for smaller groups and for even one apprentice.

Methods for establishing apprenticeship programs are fully explained in pamphlets issued by the Bureau of Apprenticeship, U. S. Department of Labor, Washington 25, D.C. These booklets, two of which are listed in the appended bibliography, describe in nontechnical language the National apprenticeship program and how it operates.

As indicated previously, we have better than a 50-50 chance of accomplishing our objectives on time if we will just start working on the problem early enough. In addition, there is another essential characteristic that must be posseessed by company and new employe in about equal amounts to insure timely, mutually-satisfactory completion of any program. This indispensable attribute is exemplified by the following story:

A traveling salesman was stranded out in the country in a flash flood and got shelter in a farm house. He was watching out the window and saw a straw hat float by. It floated to the fence and started back. He called the farmer's daughter over to watch it. It kept going back and forth the length of the yard. She exclaimed: "Oh, that must be grandpa. He said yesterday that he was going to mow the yard today, come hell or high water."

It is just about this degree of built-in determination and persistence that is responsible for the success of many plans. Without it, even the best laid plans may not be completed.

In conclusion, it is well to remember that ideas, as such, are a dime a dozen. It's doing something about them that counts—and pays off!—***T. De Witt Talmage.***

**Selected Coroborative Reading**


(1) "*The Changing American Market*," (book) written by the editors of Fortune magazine, published by Hanover House, 1954.

(2) "*Employment and Earnings*," monthly magazine and annual supplement, compiled by U.S. Department of Labor, published by the U.S. Government Printing Office.

(3) "*The National Apprenticeship Program*," written by the Bureau of Apprenticeship, U.S. Department of Labor, published by U.S. Government Printing Office, 1953.

(4) "*Setting Up An Apprenticeship Program*," author and publisher the same as reference 3, 1954.

(5) "*Teaching Apprentices And Preparing Training Materials*," (book), by M. H. Anderson, American Technical Society, 1950.

(6) "*Preparing for the Utility Rate Case*," (book) edited by F. X. Welch, Public Utilities Reports, Inc., 1954.


4, 5, 6, 7 AND 8 *For the general content of these five occupations see the "Dictionary of Occupational Titles" Vols. I and II, printed by the U. S. Government Printing Office. This dictionary is available for reference at each local office of the State employment service.*

**ATTENDING 3-day Sales Managers' Conference of L. M. Berry & Co. were (seated l. to r.): —**

**1st Row: —** ***L. E. Getzler; W. J. McGirl; F. L. Hawker; John W. Berry; Loren M. Berry; W. A. Steuer; H. F. Scott; J. P. White; E. F. Tinnerman; Ralph Maner.***

**2nd Row: —** ***J. W. Craig, Jr.; B. D. Addington; R. T. Davis; J. M. Bayley; R. H. Eshelman; K. R. Jeffers; H. C. Evans; W. C. Welch; J. W. Nagel.***

**Standing (left to right): — 1st Row: —** ***R. W. Brundige; W. L. Wolcott; S. H. Rainey; M. F. Feeney; N. E. Robinson; C. S. Aucoin; H. L. Boebel; J. D. Beckham; J. E. Whalen; Phil Engle; H. C. Hull.***

**2nd Row: —** ***J. J. Mullin; R. E. Shearer; C. A. Smith; J. W. Egnor; R. J. Burke; J. C. Grimes; J. B. Bowen; W. R. Calhoon.*** **The meeting was held at the Hotel Biltmore, Dayton.**

## Sales Conferences Held By L. M. Berry & Co. Managers

THIRTY-NINE territory and division managers and their assistants, representing the top sales management of L. M. Berry & Co., met in Dayton, Ohio, at the Biltmore Hotel, on January 9, 10, 11, to discuss the company plans and policies for 1956.

John W. Berry, general sales manager, presided over the three-day Sales Managers' Conference. His opening speech announced the theme of the conference . . . "Up with your Sights . . . to Still Greater Heights." He reviewed the results and accomplishments of the company for the past year, and announced the objectives for 1956. His final speech at the end of the meeting, "Management In Our Business," was the highlight of the conference. He pointed out the qualifications of successful manager, and particularly stressed the responsibilities of managers and supervisors in promoting and maintaining good public relations between the public, to subscribers, and the telephone company.

Other members of Mr. Berry's staff participated in the program. Willard L. Wolcott, personnel and training director, discussed "Personnel and Training." The premiere showing of the new Berry film, "The Right Connection," was made to the conferees. The job description of a Berry Salesman was outlined by Mr. Wolcott. The new Sales Training School, which will be held in the new training quarters in Dayton, was outlined in detail.

J. William Craig, Jr., general sales supervisor, discussed "Sales Control" . . . pointing out the responsibilities of the division manager and supervisor in setting up these controls for a successful canvass. He also discussed sources of additional revenue.

"Detail Training" and "Telephone Salesgirl Supervision" were the topics discussed by S. H. Rainey, general sales training supervisor. Robert W. Brundige, sales promotion manager, presented the sales promotion program for 1956; and Phil Engle, general art director, explained the art program for the new training classes.

Most of the speakers supplemented their material with slides, charts, and other visual material, including pass-outs, which made the meeting one of the most interesting and educational conferences held in Berry's history.

Shirt-sleeve conferences will follow the Dayton Conference for supervisors and will be held in the thirteen branch offices of the company. Representatives from the general office as well as the territory offices will attend these conferences.

## J. W. Stoughton Joins Buckeye Tel. & Supply Co.

R. L. HEPNER, sales, export and advertising manager for the Buckeye Telephone & Supply Co., 1250 Kinnear Rd., Columbus, Ohio, has announced the appointment of J. W. Stoughton as the assistant advertising manager.

Mr. Stoughton was formerly, associated with a Columbus agency as an account executive and is also well known throughout Ohio for his work in radio and promotional projects for the Army and Air Force

# construction and maintenance DIGEST

- Able cable
- Real cool sitting
- Birth of a cross-arm
- Quick work on cable
- 25 years young

Published every month to help you get the most out of your materials and supplies dollar

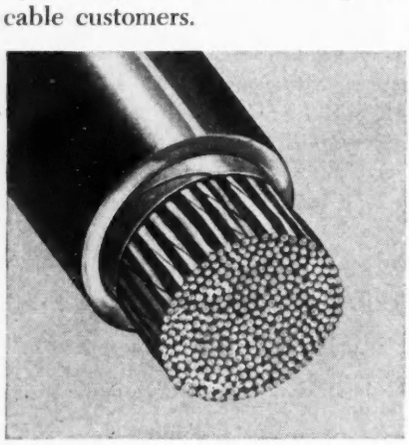
*by C. J. Reynolds, Stromberg-Carlson Company*

The few dollars you spend on *reliable* equipment today will be repaid a hundredfold in lower maintenance costs for years to come. Protect your investment with the double guarantee offered by Stromberg-Carlson. First, leading manufacturers build this equipment, and guarantee it. Second, because we recommend and sell this equipment to the telephone industry, we *also* guarantee its performance!

### Uniformity, Dependability, Lasting Service

When you've said that about cable you've covered about everything.

Kennecott Telephone Cable fills the bill in uniformity, dependability, lasting service for our telephone cable customers.



Before a single inch of Kennecott cable leaves the mill, it is tested for Dielectric Strength, Insulation Resistance, Conductor Resistance, Capacitance and Fixed Dimensions. Such care in manufacture is your warranty of efficient, trouble-free performance in the field.

Specify Kennecott — distributed by Stromberg-Carlson.

### Cane-seat chair keeps operators cool, comfortable

Making the operator as comfortable as possible may not strike you as a "maintenance" problem — yet your service is much smoother when the girls are cool and relaxed.

This operator's chair has a cane seat, which is much cooler, cleaner and more comfortable than other types. It retains all the posture advantages for which Sturgis is famed. It is called the Sturgis SC-240.

The posture-curved, well-cushioned backrest is covered in genuine leather.

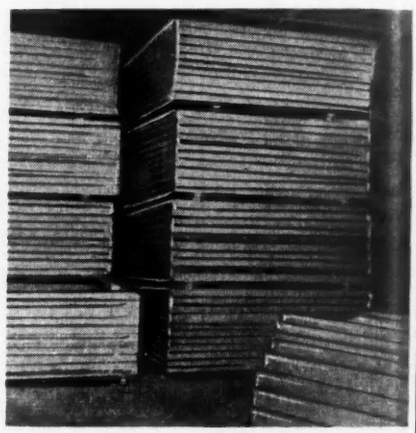
The exclusive Sturgis "Follow-Flex" feature automatically adjusts to the operator's every movement, supports her restfully all the time, discourages fatigue, keeps her at top efficiency.

Other new and welcome features include a plastic-coated steel foot ring which retains its color, and a handy purse holder, available on request. Six seat heights, all adjustable.

### Just a pile of lumber?

This is where a good cross-arm gets its start. Douglas Fir blanks, carefully chosen from select stock, are air seasoned at American Cross-Arm, Inc. to give you extra long life, resistance to stress, decay and warpage.

For those preferring pine, cross arms from selected stock are seasoned and treated according to best commercial practices.



You'll never have to cross your fingers when you've got American Cross-Arm to depend on.

### New Time Saver Terminal

When stringing plastic cable, the loop-through PLX Cable Terminal is the one to use.

The Cook PLX Cable Terminal for plastic cable.

It's the easiest to install, most economical terminal made. No stubbing—the cable is looped in and out. No splicing—the cable is continuous right through the terminal. No potting—just put a Neoprene

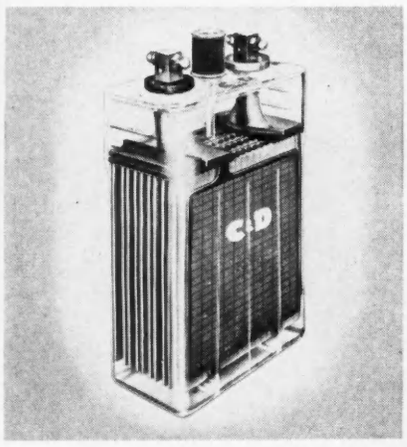
grommet in place and secure. These features mean time saved, and time saved is dollars in your pocket.

Made with a heavy galvanized steel frame and cable chamber by Cook Electric Company, it utilizes the famous XB Bakelite faceplate.

Available in 6, 11, 16 and 26 pair sizes for cable from 11 to 51 pair, 19 gauge or smaller. When ordering, specify cable to be used with terminal so correct size grommet will be included.

**These two battery types give you decades of good service**

Here's a dependable power supply for you with a life expectancy of **25 years!** It's the C & D PlastiCal telephone battery, and when we say it will last 25 years, we're thinking about **full float service.**




This low-cost PlastiCell battery has life expectancy of 14 years. Its PlastiCal counterpart will last you 25 years.

You get this extra-long life because C & D PlastiCal (lead-calcium grids) batteries have an exclusive suspended and supported plate construction.

If a 14-year life expectancy will fill your needs, C & D has an economical battery for that, too. It's the PlastiCell battery, using high-tensile lead alloy grids.

In the picture, you see one of these PlastiCell batteries. It's the CE-11 and has a 300 A.H. capacity. In PlastiCal, specify PCE-300.

*Distributed by*

**STROMBERG-CARLSON**

A DIVISION OF GENERAL DYNAMICS CORPORATION

Sales Offices: Atlanta 3, Chicago 6, Kansas City 8, Rochester 3, San Francisco 3.

recruiting programs from 1947 to 1950. Just prior to joining Buckeye he served as advertising layout and copy chief and as assistant to the promotion manager of the Columbus (Ohio) *Citizen.*

In his new post Mr. Stoughton will handle all trade journal advertising and will also be responsible for all direct mail as well as assist in the company's public relations and promotional programs.

## Lenkurt Electric Co. Forms Export Div'n

FORMATION of an Export Division to provide additional sales engineering service to customers outside the United States and Canada has been announced by the Lenkurt Electric Co., San Carlos, Calif.

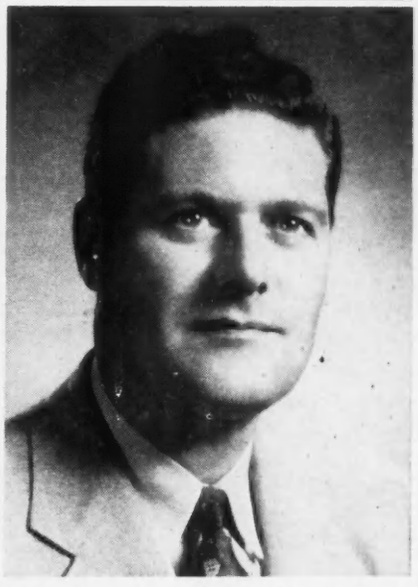
The new division is concentrating its efforts initially in Central and South American countries where Lenkurt carrier telephone systems already are used extensively.

A number of Lenkurt technical information bulletins are being published in Spanish, and the Export Division is providing other services to assist the company's distributor, International Automatic Electric Co., which handles the sale of Lenkurt carrier and microwave outside the U.S. and Canada.

Weston C. Fisher, veteran communications engineer and a former department manager in Lenkurt's sales division, has been appointed manager of the new export division. He has been heading the company's Bell System sales activities in the U.S. and formerly supervised microwave sales.

Before joining Lenkurt in 1952, Fisher was vice president of Norwesto Communications in Kenora, Ontario, and previously was a district sales engineer for RCA Victor in Canada. He received the B.S. and M.S. degrees from the University of Saskatchewan and did graduate study at Purdue University.

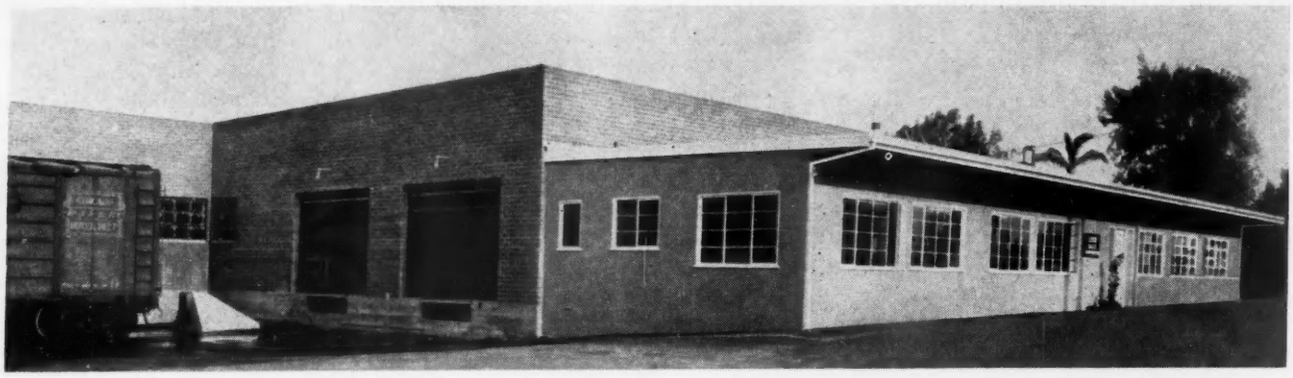
Key positions in the Export Division have been assigned to Wilbur S. Chaskin, appointed sales



**James D. Confeld** (left) has been appointed senior toll ticketing engineer of the Stromberg-Carlson Co., Rochester, N. Y., a division of General Dynamics Corp., and **Leslie A. Hodson** (right) has been named as toll ticketing engineer to assist Mr. Confeld.

A native of Minneapolis, Minn., and an electrical engineering graduate of the Michigan College of Mining & Technology, Houghton, Mich., Confeld has been with Stromberg-Carlson since 1944, when he joined the company as an XY circuit tester.

Hodson, a native of England, joined Stromberg-Carlson in August, 1955, as a senior telephone engineer. He received his education in telecommunications in Leeds Technical College, England, and entered the telephone industry in January, 1935, as an engineer in the British Post Office. In 1952 Mr. Hodson came to the United States to accept the position of commercial and traffic manager of the Elyria (Ohio) Telephone Co. The following year he joined the General Telephone Co. of the Southwest as an engineer, and later was appointed special projects engineer to study nationwide toll dialing.



**Shown here is Leich's New West Coast** sales office and warehouse located in West Los Angeles, Calif. The modern brick structure has 15,000 square feet of floor space. These larger quarters will enable Leich to offer fast, close-to-home service to West Coast telephone companies.

manager for wireline and cable carrier; Herbert B. Sutton, promoted to sales engineering manager for radio and channelizing equipment, and Harry J. Lewenstein, who will be in charge of export services.

Chaskin has been doing development engineering work at Lenkurt since 1947, and for the past two years has been manager of the carrier engineering department. He attended Heald Engineering College and the University of California. His experience includes six years as an engineer with Heintz and Kaufman.

Sutton, a B.S.E.E. graduate of the University of Missouri, lived four years in South America where he was a staff electrical engineer for W. R. Grace & Co. in Lima, Peru, and a sales engineer for International Machinery Co., a Grace subsidiary. Co., he joined Lenkurt in 1954.

Lewenstein joined Lenkurt four years ago and served as first editor of its monthly technical magazine, *The Demodulator*. He was promoted to manager of technical news, and for the past year has been coordinator of sales program planning for the company. He is an electrical engineering graduate.

## Leich Sales Corp. In New West Coast Office

THE WESTERN sales office and warehouse of Leich Sales Corp. has been moved to a new building located at 114 W. Pico Blvd., West Los Angeles, Calif.

According to D. C. Gibson, president, the newly constructed building is a one story, all brick structure containing 15,000 square feet of floor space. The warehouse will carry a complete stock of telephone equipment and supplies. In addition to telephones and standard supply items, Leich intends to stock larger equipment for the convenience of its customers. Among the equipment items which will be available for prompt shipment are telephone answering machines, cable spinning machines, aluminum telephone booths.

Robert Sanders, Western District manager for Leich, is in charge.

## Federal Tel. Announces Distributor Organization

IN A MOVE keynoting the advance of a new and unique sales program, Federal Telephone & Radio Co., a division of International Telephone & Telegraph Corp., has announced the formation of a new, nationwide distribution organization designed to give national sales and service coverage for the Mobile Radio, Industrial Telephone, and Aviation Products produced by Federal. Under this new program the country will be serviced by a leading aviation distributor.

In announcing the new distribution organization, Herbert E. Taylor, commercial sales manager of Federal, said, "The appointment of Aviation Distribution to market mobile radio and industrial telephone equipment, as well as aviation equipment, represents a new concept in sales effort."

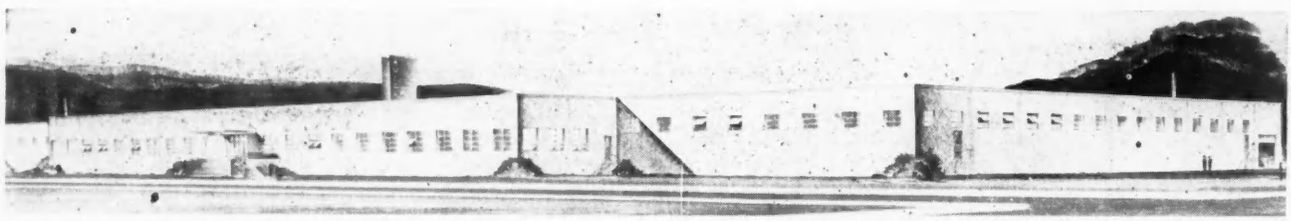
Named by Mr. Taylor as distributors were the following:

Atlantic Aviation Corp.; W. E. Richards, vice-president, Teterboro Airport, Teterboro, N. J.; for the Metropolitan and N. Engl. region.

Atlantic Aviation Service, Inc.; Stewart M. Ayton, vice-president; Wilmington, Del.; Middle Atlantic.

Bohling Aircraft Corp.; Frank Bohling, president; Midway Airport, Chicago, Ill.; Midwestern region.

Pacific Airmotive Corp.; Roy



**The Ansonia Wire & Cable Co.** has announced it will move to a new plant now under construction at Ashton, Rhode Island. Construction is scheduled to be completed by March 31st and all operations are expected to be under way at the new location in early April.

The new plant will have 113,000 square feet of manufacturing area plus 11,000 square feet of office space. The building will provide the most modern layout for the manufacture of plastic insulated and jacketed wires and cables for telephone, railroad, public utility and shipboard installation. Considerable new equipment will be provided.

Backman, vice-president, 2940 N. Hollywood Way, Burbank, Calif.; Pacific Coast region.

I. B. Smith Aircraft; Herrol Bellomy, vice-president, International Airport, Miami, Fla.; Southern region.

Southwest Airmotive Co.; O. C. Kennedy, vice-president, Love Field, Dallas, Texas; Southwest region.

Among the products these distributors will handle will be a deluxe 25-50 Mc mobile unit which will meet the most stringent operational requirements for dependable communications; private dial automatic telephone systems which can be adapted to provide centralized dictation and recording with automatic selection and push-button or dial control of the recording equipment from any telephone station; and navigation and instrumentation equipment.

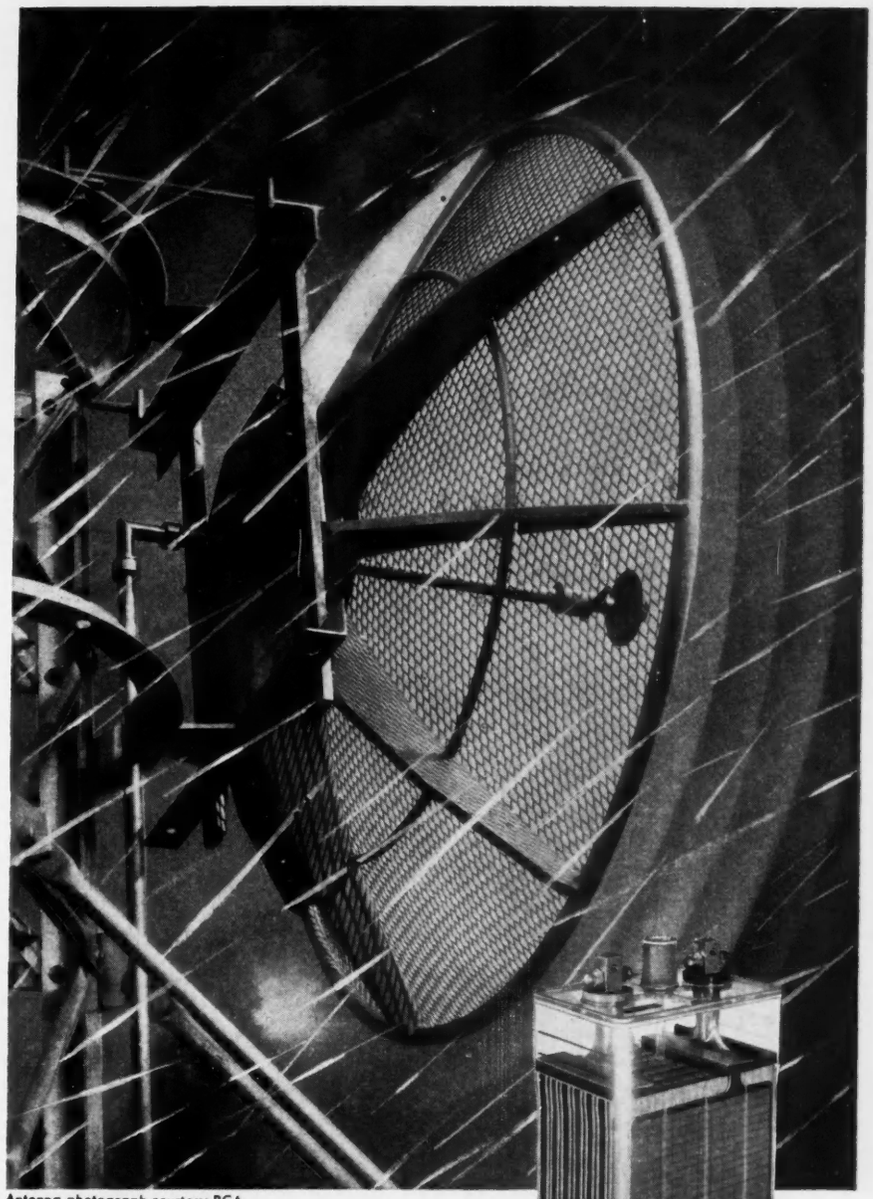
## Automatic Electric Names Blomeyer to New Post

E. C. BLOMEYER, JR., has been appointed liaison manager, foreign affiliates of Automatic Electric Co. In this new position, Mr. Blomeyer will be responsible for liaison and coordination with the factories at Brockville, Ontario, Canada; Antwerp, Belgium; and Milan, Italy.

E. C. BLOMEYER, JR.

Born in Texas, and the son of E. C. Blomeyer, Sr., one of the pioneers in the Independent telephone industry, Mr. Blomeyer, Jr., studied electrical engineering at Northwestern University in Chicago where he was awarded his bachelor and master of science degrees.

He joined Automatic Electric in 1938 after serving with operating

Antenna photograph courtesy RCA

**Keep your microwaves on the air!**

**with C&D Batteries, for standby power**

C & D Batteries are always ready to help keep your vital microwave system on the air, regardless of interruptions to normal power supply.

With C & D batteries standing by, you get—

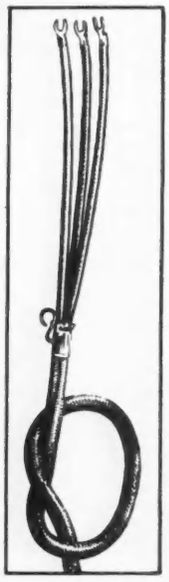
1. An emergency source of power that *always* starts.
2. Low annual cost.
3. Simplest maintenance—no working parts to get out of order; just dust and occasionally add water.
4. Long life—25 years with lead-calcium C & D PlastiCal.®

**For complete details on C&D standby power, write for Bulletins T-527/55 and T-528 Rev. 3.**

C&D BATTERIES, INC.
of Conshohocken, Pa. | Attica, Indiana

*Industrial Batteries since 1906*
SALES AND SERVICE OFFICES IN PRINCIPAL CITIES FROM COAST TO COAST

LET CORD CLAIMS CONFUSE YOU



After all, there is only one way to sensibly evaluate telephone cord performance and that is to put them to the final test —*actual service!* So we invite you to "service-test" COMMERCIAL CORDS on your own installations and judge for yourself. We'll gladly furnish cords for such tests if you'll tell us about your requirements.

**COMMERCIAL MAKES CORDS BETTER-TO LAST LONGER!**

*Write, Wire or Phone*

**COMMERCIAL CORD & SUPPLY CO., INC.**

26 E. Main St. • Clifton Springs, N. Y.

Phone: CLIFTON SPRINGS 189

*CORDS FOR ALL MAKES AND TYPES OF TELEPHONE INSTRUMENTS*

companies in Missouri and Ohio. Prior to his new appointment, he was assistant to R. W. McMichael, vice president and general manager of International Automatic Electric Corp.

## Loomis Advertising Joins With General Tel. Directory

THE BOARDS OF DIRECTORS of General Telephone Directory Co. and of Loomis Advertising Co. have agreed to integrate Loomis Advertising Co.'s telephone directory activities with General Telephone Directory Co.

Frank Davies, who had been president of General Telephone Directory Co., was elected chairman of the board. Wesley H. Loomis, III, who had been president of Loomis Advertising Co., was elected president of General Telephone Directory Co. Everett N. Morningstar, who had been vice president and general manager of General Telephone Directory Co.. will retire from active management but will be available for consultation as needed.

It is anticipated that Warren A. Rolph, who had been general sales manager of General Telephone Directory Co., will be elected a vice president of the integrated company. It is also anticipated that Roland T. Beard, who is vice president and general manager of the telephone directory activities of Loomis, will be elected a vice president of General Telephone Directory Co.

Mr. Loomis graduated from Massachusetts Institute of Technology, Class of 1935, started his telephone career with Automatic Electric, and was elected president of Loomis Advertising Co. in 1946. During World War II he was a Lieutenant Colonel in the United States Army. He makes his home currently in Kansas City, although with his new assignment Mr. Loomis will move to Chicago.

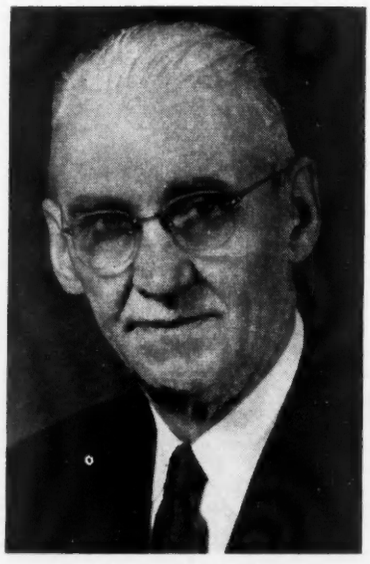
WESLEY H. LOOMIS, III

The telephone directory activities of Loomis Advertising Co. cover parts of 20 states, serving about 260 telephone directories for the Independent telephone industry. After the integration General Telephone Directory Co. will offer complete directory service to more than 800 directories in 32 states. General Telephone Directory Co., with headquarters at Des Plaines, Ill., is part of General Telephone System.

## H. S. Williams Gets New Automatic Electric Assignment

H. S. WILLIAMS has been elected a vice president of International Automatic Electric Corp. and placed in charge of its export activities in New York city.

In this new capacity, which will be in addition to his duties as vice president for domestic sales in the eastern district of the United States, Mr.



H. S. WILLIAMS

Williams succeeds Vice Admiral W. S. Anderson, (U.S. Navy, ret.). Admiral Anderson has retired from the company after more than 10 years of service, which followed his 46½ years active duty with the Navy.

Mr. Williams has been with Automatic Electric for 30 years, his career including wide experience in both manufacturing and sales. He headed the eastern district sales office in New York from 1933 until 1942, and served in the U. S. Navy during World

*Please Turn To Page 104*

Model 705 Barber-Greene Runabout digs through toughest soils. High travel speed cuts time and cost of service trenching.

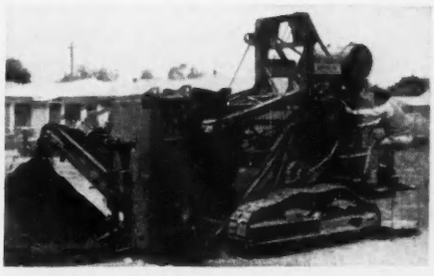
# For lowest-cost trenching . . . choose the ditcher that's right for you

The first step in reducing ditching costs is to select the machine that meets your requirements. Ground conditions . . . digging range . . . job to job portability —all are factors that change with varying trenching operations. That's why Barber-Greene builds *four* distinctively different ditchers—each with special features that give it unsurpassed performance within its field.

Take the Model 705B Runabout for instance. Long a favorite for house service trenching, this versatile ditcher features the exclusive vertical boom that digs right up to obstacles leaving no ramp . . . Hydra-Crowd that gives finger-tip control of maximum crowding speeds independent of bucket line speed . . . and Fluid Coupling that eliminates shock loads.

**Model 711 for widely scattered jobs.** A 45 m.p.h. travel speed reduces between job time to a minimum. Digs to 5′ deep, and 18″ wide.

**Model 702 for narrow trenches.** A remarkably low-cost unit ideal for cable, conduit or small pipe. Digs 2¼″ to 5″ wide, to 40″ deep.



**Model 44C for heavy-duty trenching.** Crawler mounted for sure traction on soft bases, this Barber-Greene cuts to 8′ 3″ deep, and to 24″ wide.

56-4-D

**Write for literature on any ditcher in the Barber-Greene line**

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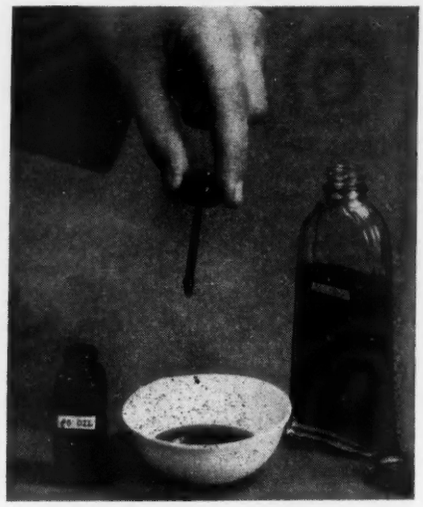
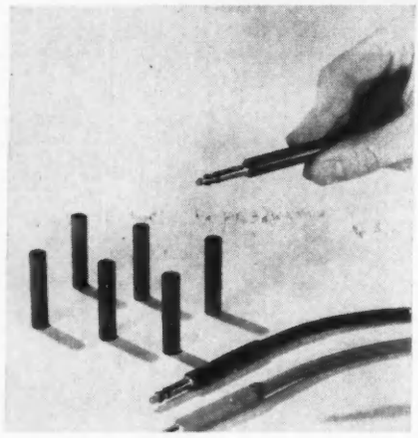
# NEW PRODUCTS' SHOWCASE





### Insulator Shells

ETHYL CELLULOSE tubing extruded by Anchor Plastics Co. is now being used as insulator shells on switchboard cord plugs manufactured by Western Electric Co.

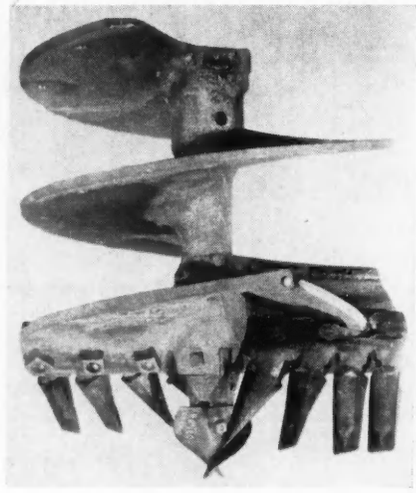
The plastic covered switchboard plugs are used by the Bell System in southern installations and tropical systems where high humidity would cause fibre tubes to deteriorate rapidly and lose their electrical strength.

The ethyl cellulose tubes, which are supplied in red, green, and grey to assist in service identification on the switchboard, do not react to high humidity and are also fungus resistant.

Anchor extruded ethyl cellulose tubes in other diameters are also being used as plug bodies and test probe insulators for military applications.—For complete data, ***Check New Product* 901.**

### Pengo "Wisdom Teeth"

A COMPLETELY NEW reversible tooth in two sizes has been announced by Petersen Engineering Co., Santa Clara, Calif. Designed especially for use on earth boring augers and cutting heads the tooth has three outstanding features: (1) longer wearing surface; (2) they are reversible, and (3) positioned to bore without down-pressure. They are reversed after they are worn out on one side, and worn out again. The more efficient boring angle permits boring in



most instances without any down pressure at all, eliminating wear on clutch-plates and eliminating waste of power formerly required for down-pressure.

The new #49 PENGO Wisdom Tooth is especially designed for use on augers powered by heavy and extra-heavy duty boring machines and the #41 PENGO Wisdom Teeth are designed for use on medium and light weight machines. The manufacturers state that these are the most outstanding improvements in their auger line that have ever been made.—For complete data, ***Check New Product* 902.**

### Fuel Oil Additive

A NEW ADDITIVE for #4, #5, and #6 oil that features an unusual Gel Breaking Detergent Action, and that prospective purchasers may try on a 30-day free trial offer, is being manufactured by the Stewart-Hall Chemical Corp. "Desludgit," the additive, is non-corrosive and non-explosive.

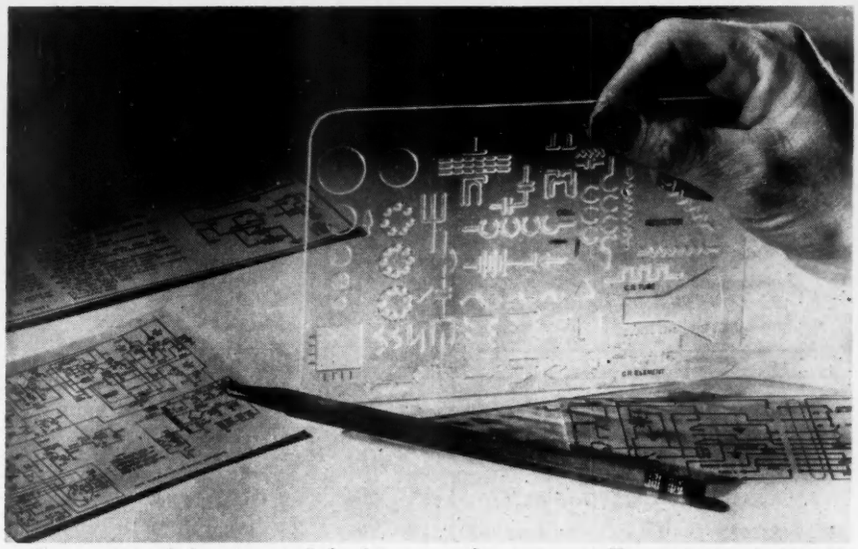
Desludgit is designed to break-up oil-water gels, dissolve sludge, and emulsify water in the oil. The net result of using Desludgit is that the fuel system remains clean from fuel tank to chimney, because all the oil purchased is consumed at peak atomization efficiency.

For interested organizations, a free Desludgit demonstration kit is available.—***Check New Product* 903.**

### Drafting Templates

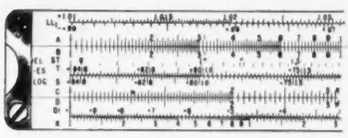
AN ENTIRE SERIES of drawing and drafting templates especially engineered for the communications industry make it possible to render any schematic or circuitry drawing in less than half of the time usually required. The templates have been simplified and clearly marked to the extent that much routine work can now be delegated to trainees or less experienced help, freeing seniors to spend more time on advanced and complicated problems and assignments.

Each of the templates is engraved on rigid transparent vinyl plastic. The series includes: (Illustrated) The Electroneer, a 4¼″ x 6½″ electronic and cathode tube template, $3.00; The Electromaster, a 9″ 45 degree triangle with all ASA electrical symbols used in the electric light and utility field, $4.00; and Electric Public Utilities template with all component parts and elements, $2.50; A Power and Light template from a Bureau of Reclamation design including symbols of equipment that carry the load from source to consumer — 7½″ x 5½″, $5.00; and an Electric Con-



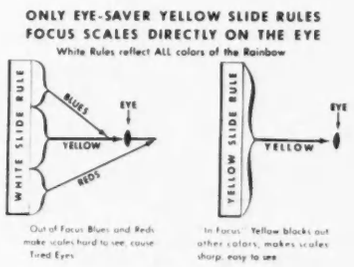
**New series of drawing and drafting templates, especially engineered, for the communications industry, makes it possible to render any schematic or circuitry drawing in less than half of the time usually required.**

trols or Automation template with all JIC symbols for electrically controlled machinery — 9″ x 3⅜″, $2.50.— For complete data, ***Check New Product* 904.**



### Slide-Rule

NEW LIGHT-ALLOY slide rules made in green-yellow eliminating violet and red rays which focus in front of and behind retina. Green-yellow shade coincides with optimum sight point of the spectrum, cuts eyestrain, blurring and errors in reading calibrations. Non-corrosive, non-rusting metal construction eliminates warping, swelling and binding. Now made in 6″ and 10″ Trig, Log-Log standard rules, or in rules made to special order. For your copy free catalog write to Pickett & Eckel, Inc., 1109 South Fremont Ave., (Dept TEM) Alhambra. Calif., or ***Check New Product* 905.**

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ADV. 16..... ADV. 17..... ADV. 18..... ADV. 19..... ADV. 20.....
ADV. 21..... ADV. 22.....

# THE BUYERS' GUIDE

**ADVERTISING,** Directories — *General Telephone Directory Co., 1800 Busse Highway, Des Plaines, Ill.*—[ADV. 1]

**BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT,** *W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.*—[ADV. 2]

**BELTS — CLIMBERS — PLIERS — SAFETY STRAPS — CONSTRUCTION TOOLS.** *Klein & Sons, Mathias, 7200 McCormick Rd., Chicago 45, Ill.*—[ADV. 3]

**BOOTHS—Acoustic Telephone** — *Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.*—[ADV. 4]

**BRUSH & WEED KILLERS** — *Thompson manufactures many types of brush and weed killers. Write for helpful information on specific problems. Thompson Chemicals Corp., St. Louis 3, Mo.*—[ADV. 5]

**CABLE, All Plastic, Aerial, Duct, Direct Burial, PBX, Switchboard.** — *The Ansonia Wire & Cable Co., Ansonia, Conn.*—[ADV. 6]

**CORDS, Switchboard (with or without plugs), Instrument (retractable and regular) and Operators** — *Commercial Cord & Supply Co., Inc., 26 Main St., Clifton Springs, N. Y.*—[ADV. 7]

**CORDS, Switchboard & Telephone** — *Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.*—[ADV. 8]

**FURNACES** — For quickly and economically melting lead and paraffin — *Mutual Liquid Gas Equipment Co., Inc., 3600 W. Imperial Highway, Los Angeles, Calif*—[ADV. 9]

**INSULATORS, Porcelain** — *Porcelain Products Inc., Box 300, Findlay, Ohio.*—[ADV. 10]

**LIGHTWEIGHT PULLERS** — *Coffing Hoist Company, 800 Walters St., Danville 5, Ill.* — [ADV. 11]

**PIPE PUSHERS** — *Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.*—[ADV. 12)]

**POLE HOLE DIGGERS** — *For derrick mounted trucks. Tele-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.* —[ADV. 13]

**POLES, Southern Yellow Pine** — *Colfax Lumber & Creosoting Co., Inc., P. O. Box 23. Pineville, La.*—[ADV. 14]

**POLES, Southern Yellow Pine** — *Taylor Colquitt Company, 290 E. Main St., Spartanburgh, S. C.*—[ADV. 15]

**POLES, Southern Yellow Pine** — *Texas Creosoting Co., Orange, Texas.*—[ADV. 16]

**PROTECTIVE EQUIPMENT** — *Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.*—[ADV. 17]

**REBUILT TELEPHONE & SWITCHBOARDS** — *Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 26, Ill.*—[ADV. 18]

**TRUCK BODIES** — *Highway Trailer Co., Edgerton, Wisc.*—[ADV. 19]

**WIRE, Insulated — DATED DROP WIRE — Neoprene or Weatherproof** — *Alphaduct Wire & Cable Co., Milltown, N. J.*—[ADV. 20]

**WIRE, Insulated Drop and Bronze or Copperweld** — *Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.*—[ADV. 21]

**WIRE, Telephone, for all inside and outside uses** — *Whitney Blake Co., New Haven, Conn.*—[ADV. 22]

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APPRAISALS—COSTS—PLANT
7720 SHERIDAN ROAD — CHICAGO
FOR MAIL BOX 523 EVANSTON, ILLINOIS

Your FCC second and first phone license in a hurry. Nation's largest professional school offers brand new, streamlined course. Guaranteed coaching. Full information rushed to you free. Get the best—it costs no more! Write:
**Northwest Radio & Television School,**
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A Professional Card in Telephone Engineer Publications will be seen by the directing heads of thousands of telephone companies every month.
Rates are reasonable — Write for details. Address Advertising Manager, 7720 Sheridan Road, Chicago 26, Illinois.


*(Concluded From Page 100)*

War II, holding the rank of captain. At the end of the war he was assigned to the company's Chicago offices and in 1946 was placed in charge of the field sales force. In 1955, Mr. Williams returned to New York to head the eastern sales organization.

## John H. Gustafson Retires From Automatic Electric

JOHN H. GUSTAFSON, Automatic Electric Co. labor relations manager, has retired after more than 45 years service.

A native of Chicago, Mr. Gustafson started with the Automatic Electric group in 1910 as an installer. Since that time he held a wide variety of positions in the factory organization

JOHN H. GUSTAFSON

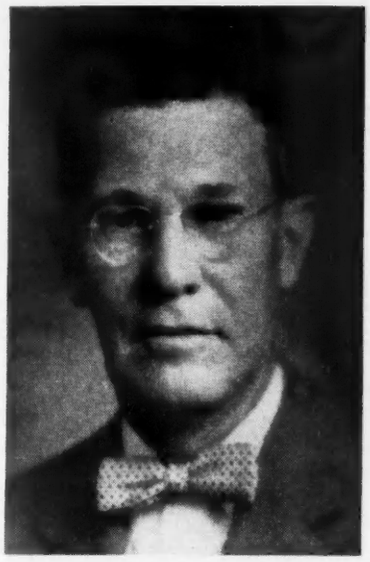
in testing, inspection, dispatching and as foreman, general foreman, assistant department superintendent and assistant factory superintendent.

In 1944, he was promoted to factory superintendent and was named to the labor relations post in 1954.

## John F. Allen Joins L. M. Berry & Co.

LOREN M. BERRY of L. M. Berry & Co., Dayton, Ohio, one of the country's leading directory advertising sales agencies, has announced that John F. Allen of New York City will join the Berry organization on May 1st in an executive capacity.

Allen is well known in the Yellow Pages advertising field where he has been active for many years. He retired on December 31, 1955, from the American Telephone & Telegraph Co. He had headed directory production



**JOHN F. ALLEN**

projects for that company for three years. Prior to that he was directory sales engineer for the same company and is a recognized authority on sales organization, training, supervision and promotion of Yellow Page usage.

During his long connection with A. T. & T., Allen travelled throughout the United States and Canada. He organized the first formal training classes for Yellow Page salesmen, and supervised the development of training material which formed the basis for all modern directory sales training courses. He was responsible for the development of customer surveys which indicate how the public used the Yellow Pages and why they select a particular advertiser — material which has proved to be among the best sales material the directory man carries in his brief case.

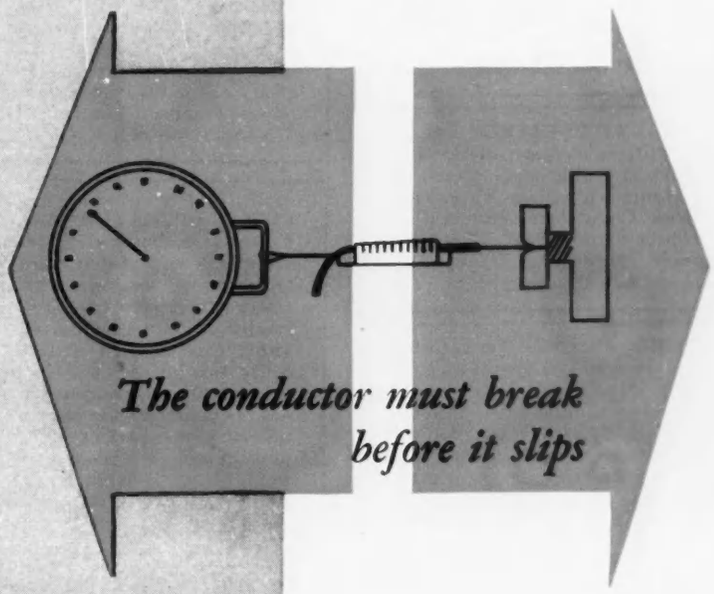
Prior to joining A. T. & T., Allen was directory manager at Pittsburgh and Philadelphia for The Bell Telephone Co. of Pennsylvania. He is a native of Michigan, attended Ohio State University and lives in Upper Montclair, N. J.

Mr. Berry stressed that Allen's association with L. M. Berry & Co. would enable the company to give better and more complete service to the four Bell Associated and over 250 Independent telephone companies which it serves.

"Better service to our valued customers," he said, "has always been our primary objective and is best summed up in our 46 year old policy: 'The largest amount of advertising revenue consistent with maintaining the best public relations with the subscribers.' "


ALPHADUCT

P clamp adhesion test



*The conductor must break before it slips*

P clamps are the most widely used method of attaching drop wire to buildings. Lest you may worry about a P clamp causing slipping of the insulation or jacket on Alphaduct Neoprene Jacketed Drop Wire — read about this Alphaduct service test. This test is made daily.

A sample of Alphaduct wire is inserted in a P clamp with 12 inches of the wire projecting from the top of the clamp. The bail of the clamp is then inserted in the upper jaws of a tensile testing machine, and the end of the wire is stripped free of jacket and insulation and inserted in the other end of the machine.

The jaws of the machine are then gradually separated until the conductor breaks. The conductor must break before there is ANY slipping of either the jacket or the insulation.

Don't have any worries about a little old P clamp hurting ALPHADUCT drop wire. Try Alphaduct. It's dated by a color coded thread so you can see for yourself how long it lasts, how much money it saves.

ALPHADUCT WIRE AND CABLE COMPANY • MILLTOWN, NEW JERSEY
NATIONAL DISTRIBUTORS • LEICH SALES CORPORATION, CHICAGO, ILLINOIS
REGIONAL DISTRIBUTORS • PANKEY SUPPLY CO., CHARLOTTESVILLE, VA.
THE LINDSAY TELEPHONE SUPPLY CO., CLEVELAND, OHIO

EMPLOYEES
POSITIONS
SERVICES

# THE CLEARING HOUSE

FOR SALE
OPPORTUNITY
EQUIPMENT

Published in each issue of Telephone Engineer & Management. Advertising forms close on 1st of month. Rates 15 cents a word except for Situation Wanted ads, which are only 10 cents per word. In figuring cost of ads, count each word of address in number of words used. All ads payable in advance. Minimum charge—$2.00. Special rates for display ads on request. Send copy and box number replies to Telephone Engineer Publ-ishing Corp., 7720 N. Sheridan Road, Chicago 26, Ill.

## HELP WANTED

**WANTED:** Couple (or two operators) about 24-45, operate small 24-hour telephone office, about 100 stations, heavy on tolls, make 3-hourly weather observations. Required: High School graduation, recent references, dependable, pleasant personalities. Small house-office furnished. $2100 salary for each. Couple contracting maintenance including dial and toll line can jointly earn $6000. Reply Telephone Company, Glenwood, New Mexico.

**EQUIPMENT ENGINEER** wanted with ability to engineer carrier and switchboard additions. Excellent opportunity with Class A company on West Coast. Send full resume first letter to Box 9002, Telephone Engineer Publishing Corp., 7720 Sheridan Rd., Chicago, Ill.

**OUTSIDE PLANT ENGINEER** wanted to take charge of all engineering for Class A company in northern California which includes 22 exchanges. Excellent opportunity for man with ability to plan and direct activities of field engineering personnel. Knowledge of carrier and switchboard equipment desirable. Reply sending complete resume to Box 9004, Telephone Engineer Publshing Corp., 7720 Sheridan Rd., Chicago, Ill.

**EQUIPMENT INSTALLER** and equipment maintenance man wanted. Permanent position with Class A northern California company. Send letter with details of your experience to Box 9003, Telephone Engineer Publishing Corp., Chicago, Ill.

**CABLE SPLICERS,** Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 6100 N. 20th, Philadelphia, Pa.

**PLANT ENGINEER;** Young man with telephone engineering background to work as plant engineer with midwest telephone company operating 21,000 stations. Must have had experience in outside construction and central office operations. Salary open. Reply Box 8999, Telephone Engineer Publishing Corp., 7720 Sheridan Road, Chicago 26, Illinois.

**HELP WANTED:** "Man under 35 to assist consulting engineer in field work and office design of telephone outside plant and exchange equipment. Previous experience required. Box 3984, Raleigh, N. C."

**WANTED**
**TELEPHONE ENGINEER**

Wanted: Telephone engineer with broad, general background in all operating phases to assume complete responsibility for toll and special services compensation work. Salary open. Write Box 9005, Telephone Engineer Publishing Corp., 7720 Sheridan Road, Chicago, Ill.

**CHIEF OPERATOR WANTED:** Class A Independent Telephone Company, in mid-west wants Chief Operator or someone with supervisory experience. Good working conditions with good salary. Supervision over 30 girls with responsibility for hiring. Benefits include paid vacations, insurance and sickness benefits. Please send full details of past experience and a small photograph, if possible. Address Box 9000, Telephone Engineer Publ. Corp., 7720 N. Sheridan Rd., Chicago 26, Ill.

**CHIEF OUTSIDE PLANT ENGINEER** for permanent position in Alaska's largest and fastest growing community. Must have broad experience in all phases of outside plant engineering and be capable of assuming related administrative responsibilities. Submit complete resume of background first letter to Superintendent, City of Anchorage Telephone Department, Box 400, Anchorage, Alaska.

**Telephone**
**Installation Engineers**

**Thoroughly experienced on cross-bar central office equipment. Must be free to take assignment in South America. Excellent opportunity for permanent position with a world wide communications organization. Send full details *Box 9007* Telephone Engineer Publishing Corp., 7720 N. Sheridan Road, Chicago, Ill.**

**WANTED:** — General Manager and exec V. Pres. for telephone system, headquarters Chicago, 15,000 stations. Well rounded administrative experience needed. Compensation open. Must be go getter. Reply Box 8998, Telephone Engineer Publ. Corp., 7720 N. Sheridan Road, Chicago 26, Illinois.

**DIVISION MANAGER:** Extremely rapidd growth has resulted in opening for Manager of Division having approximately 25,000 stations. Qualifications require ability to supervise Plant, Traffic, and Commercial Departments. Western location. Replies confidential. Please send complete resume to Box 9010. Telephone Engineer Publ. Corp., 7720 Sheridan Rd., Chicago, Ill.

**CENTRAL OFFICE EQUIPMENT MEN**

Northern Ohio Telephone Company of Bellevue, Ohio, with 66 exchanges in Northern half of Ohio, offers steady employment at several of its District Headquarters exchanges. Fixed location, home each night (except in an emergency), automatic wage progression, holidays with pay, pension benefits, sick pay and hospitalization, with an operating company interested primarily in improving its service to over 93,000 subscribers. Write Eugene Alexander, Equipment Superintendent, Bellevue, Ohio, setting forth your experience and qualifications.

**PERSONNEL WORK:** Excellent opportunity for young man to organize Department of Industrial Relations to rapidly expanding company having over 1,000 employes. Experience in telephone industry and personnel work highly desirable. College education preferred but not essential. Reply to Box 9009, Telephone Engineer & Management, 7720 Sheridan Road, Chicago, Ill.

**HELP WANTED:** Experienced outside plant telephone engineer for sales engineering position. Large manufacturer. State qualifications and experience. Replies held confidential. Send complete resume to Box 9008, Telephone Engineer Publ. Corp., 7720 Sheridan Road, Chicago, Ill.

## POSITION WANTED

**POSITION WANTED:** Young Ex. I. T. T. Foreman of installations. Installed and maintained automatic dial telephone central offices in Asia, Europe, Argentina. Speak and read Spanish, Turkish, Romanian, Hungarian. 20 years experience in 1000 line automatic dial Installations. Arrived U. S. A. Dec. 1955 for permanent residence. Write:
John Belovary
1104 Lexington Ave.
Dayton 7, Ohio.

**POSITION WANTED:** Man, middle fifties; over 30 years experience; C. O. and outside station repair, desires location Eastern Seaboard state. Available June 1st. Box 9006, Telephone Engineer Publ. Corp., 7720 Sheridan Rd., Chicago 26, Ill.

## FOR SALE

SPECIFY

**TELERING**

for

**Dependable and Economical Telephone Ringing Power Equipment.**
**Engineered for complete satisfaction.**
*Manufactured by*
**TELKOR, INC.** Elyria, Ohio

# GIGANTIC TWO DAY AUCTION!

**Over $1,957,000.00 Acquiusition Cost**
**TELEPHONE, TELETYPE, ELECTRONIC**
**& TEST EQUIPMENT, COMPONENTS, ETC.**
**— TELEPHONE SUPPLY CORP. —**

**Tues. & Wed.**
**MARCH 13-14**
**10 A. M. each day**

**on the premises**
**1864 PENNMAR ST.**
**EL MONTE, CALIF.**
**(10 Mi. E. of Los Angeles)**

## CABLE-SPLICERS' WIPING CLOTHS

**WIPING THE VERTICAL JOINT**

Showing the up-right cloth in action.

Formed-flexible finishing cloths (Patented); Flat finishing cloths; Catch cloths; Crotch cloths and Up-right joint catch cloths. Made of world-prize HERRINGBONE TICKING or imported English MOLESKIN. If your jobber cannot supply you write us for literature and prices.

**GEO. E. WILLIAMS CO.**
3035 ALDRICH AVENUE, MINNEAPOLIS, MINN.

## SWITCHBOARDS FOR SALE

**1 — 7 Position C.B. Western Electric #1 Switchboard Equipped With: —**

***1500 subscriber line circuits, 20 universal cord circuits, 95 cord circuits (17 per position), 80 toll and rural line circuits and associated equipment such as MDF verticals, relay bays, etc. plus all necessary power supplies. (A very good buy).***

**5 Positions of Northern Electric #12 C.B. Switchboard Equipped With: —**

***80 C.B. subscriber lines (Cap. 1440 C.B. sub. lines), 10 rural magneto trunks, 30 toll line circuits, 5 interposition trunks, 1 long line relay unit (14 relays) plus test panel and all other associated equipment, plus also all necessary power supplies. Excellent condition. (Less than 5 years old).***

**6 Positions (2 Sections) C.B. #1 Western Electric Switchboard Equipped With: —**

***10 universal cord circuits, 91 local cord circuits (17 per position), 1400 C.B. subscriber lines, 40 toll and rural line circuits, 2 pay station line circuits, 50 outgoing trunk circuits, relay bays, MDF, plus all necessary power supplies. (Excellent condition)***

**15 Positions (3 sections) C.B. #1 Western Electric Switchboard Equipped With: —**

***3500 subscriber lines, 10 universal cord circuits, 225 local cord circuits (17 per position), 50 toll and rural line circuits, 20 pay station line circuits, 40 outgoing trunk circuits, test sets, MDF relay bays, peg count meters and keys, information trunk circuits and all necessary power requirements. (All equipment in excellent condition).***

These switchboards will be taken out of service due to our dial conversion. For prices, pictures and further information write to:

**Northern Telephone Company Limited,**

**New Liskeard, Ontario, Canada.**

# Classified Advertising

*(Concluded From Page 107)*


**FOR SALE**

**LINE & CUT-OFF RELAYS**

W.E. # A1 and A-2
W.E. # AB-4 and AB-6
S.C. #194-A and #193-BB
Kellogg #2029-CEY and #2048-SR
Kellogg #2029-SAH and #20.48-SR
*Many Types Standard Relays*
Reconditioned by

**BUCKEYE TELEPHONE & SUPPLY CO.**

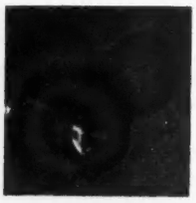
1250 Kinnear Rd., Columbus 21, Ohio

Reconditioned Stromberg-Carlson 1248 W Magneto desk sets Strong Alnico generator easily converted from magneto to common battery or dial operation. Shipped on approval.

Price .....$19.50 each
12 or more .....$18.50 each

**BOHNSACK EQUIPMENT CO.**
GERMANTOWN, NEW YORK

**STROMBERG-CARLSON RELAY CABINET containing:**
10-Circuits-B49960 (Toll line circuit)
18-Circuits-B40940 (Toll line circuit combination dial & ringdown)
15-Circuits-B41040 (Line circuit Toll Terminal)
**STROMBERG-CARLSON RELAY CABINET containing:**
30-Circuits-B46890 (Toll line circuit signal transfer)
6-Circuits-B48480 ((Trunk circuit Dial Tributary)
30-Circuits-B41040 (Line circuit Toll Terminal)
5-Circuits-B41080 (trunk circuit Inter Position)
**TWO LEICH (VIBRATOR TYPE) HARMONIC RINGING CURRENT GENERATORS**
reply: SEACOAST TELEPHONE CO., MYRTLE BEACH, S. C.

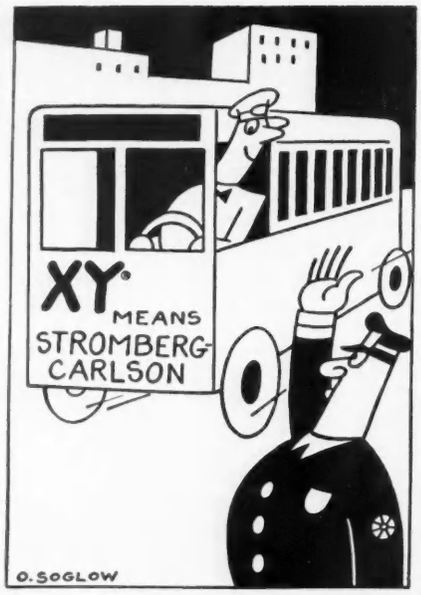


**Rebuilt, Refinished**
Loud ringing bells. 1000 or 2500 Ohm @ $8.00 each. With Condensers @ $8.00 Each.
F.O.B. Chicago, Ill.
**INDEPENDENT TELEPHONE REPAIR CO.**
2137 W. 21st St.
Chicago 8, Illinois

**MAGNETO SWITCHBOARDS**

UNUSED CONDITION
**$295**
comes with cable for connecting to main frame
Write for latest list of BARGAINS

**TELEPHONE SUPPLY CORP.**
PHONE FOREST 0-0341
1864 PENNMAR AVE., EL MONTE, CALIF.




**RECONDITIONED EQUIPMENT**

W. E. #202 Desk type hand set, W/El - Hand units, 3 Cond. Cords. @ $8.75 ea.
W. E. — El — Hand Units Only, 3 Cond. Cord. @ $3.00 ea.
Conn. Elect. Hand Units, 4 Cond. Cords, Capsule Receiver, & Transmitters. @ $4.00 ea.
Bicycle, Model M. 7.5-60 @ $25.00 ea.

Prices are F.O.B. Chicago

**INDEPENDENT TELEPHONE REPAIR CO.**
2137 West 21st St. Chicago 8, Ill.

**POLES**

Creosoted Southern Yellow Pine Poles. Treating Plant, Augusta, Georgia

**PIEDMONT WOOD PRESERVING COMPANY**
Box 1662, Spartanburg, S. C.

**THE $16 BILLION TELEPHONE INDUSTRY**

**Over 52 Million Telephones is spending $1-½ Billion Annually**

***for new equipment, supplies buildings, repairs, maintenance, etc., etc.***


## Milton M. Price Elected A V.P. of International AE Corp.

MILTON M. PRICE has been elected a vice president of International Automatic Electric Corp., and will serve in a staff capacity, principally on assignments in countries outside the United States.

His former duties as export manager will be taken over by the office of R. W. McMichael, vice president

MILTON M. PRICE

and general manager of International. Mr. McMichael has now assumed direct supervision of International sales in the Chicago office.

A native of South Dakota, Mr. Price studied at the University of Paris and the Ecole Des Sciences Politiques in Paris, France and other schools in France and Germany. He joined Automatic Electric in 1930 after serving in a number of responsible business posts in various European countries including three years as Yugoslav correspondent for the Associated Press.

## Int'l Harvester Names Colacuori Sales Supv.

THE APPOINTMENT of Sal Colacuori to the newly created position of sales supervisor, motor truck product development, has been announced by R. M. Buzard, manager of sales, motor truck division, International Harvester Co.

Colacuori, since 1948 general supervisor of motor truck sales engineering, has been succeeded in that assignment by N. L. Ginder, sales engineering consultant. Ginder, a graduate of Purdue University, has served since 1946 with the motor truck division in various service and sales engineering capacities.

STROMBERG-CARLSON

# Transmitter

A DIVISION OF GENERAL DYNAMICS CORPORATION

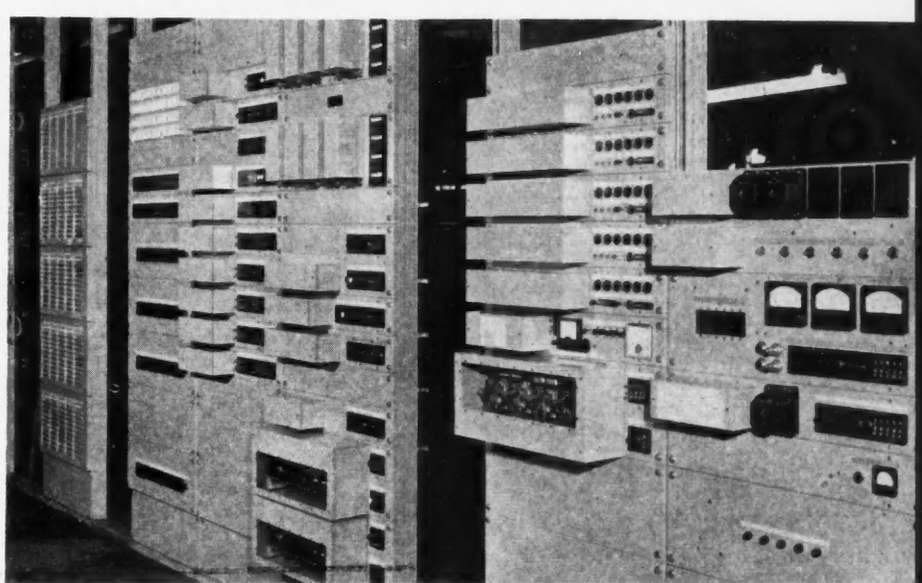
VOLUME 4, NUMBER 11 • FEBRUARY, 1956

## For Power Plant of Giant Main Office... Or Small Manual Exchange--It's More Power To You

*as told by Ralph Williams, Engineer—Equipment Development Section*

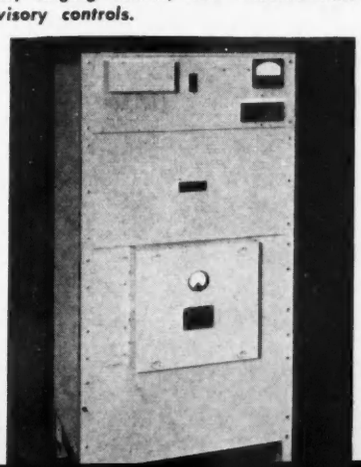
In the power board assembly area at Stromberg-Carlson one of the larger power plants for a single XY® Dial office is being tested before shipment. The large illustration shows 6 of the 7 bays which will comprise this installation, each constructed in the general XY pattern that has proved so satisfactory because of its building-block flexibility, yet containing new features which are the product of continuing research.

The requirements of this large office dictated a design wherein many elements that are normally combined with other panel units on one frame had to be grouped in a different manner. Once the specifications for power, ringing, distribution and supervision were determined, and the individual panel design to provide for this increased power and supervisory control had been worked out, the assembly of the completed units followed the general pattern of all XY dial office power boards.



***Power plant for a large XY dial exchange lined up for final testing. Bay at extreme left is composed of frequency marking panels. Other bays, reading from left to right: battery and distribution, ringing relays and control, group and common supervisory, tone, and charger control. Missing at time photo was taken: battery control bay.***

***Complete power unit for a manual central office or a manual PBX. Includes batteries mounted on a shelf in the rear of cabinet, charger, ringing source, and miscellaneous supervisory controls.***

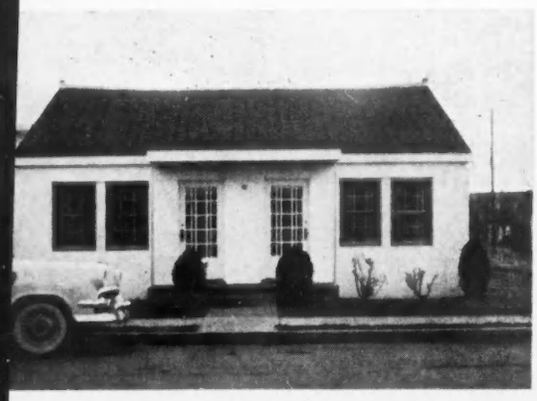


This *standardization with flexibility* naturally provides a time advantage in manufacture; more important to the eventual user, it permits the same type of efficient, easy-to-handle power and supervisory arrangement to be placed in any dial office, no matter what the size. For multi-exchange systems this reduces the training program to the minimum. For the growing exchange — and that is the situation in most offices today — there is no problem either in straight addition or substitution of a panel with different features.

Although the XY power board is the logical answer for almost any type of dial service of any size, requests have come in to Stromberg-Carlson for a small, compact manual power pack embodying as far as possible the advantages and economies of the dial office boards, yet tailored to the bare essentials of good manual operation. The small illustration on this page shows a design which answers the power needs for such an office — small in size (just 30″ wide, 60″ high and 15″ deep), economical in first cost, efficient and reliable in operation. Inquiries as to the capacity and applications of this new manual power pack are invited.

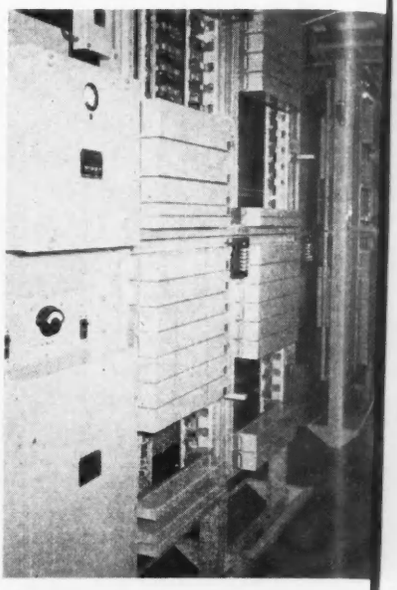
*Do-it-yourself club notes*

# Fred Rector's Exchange at Rosebud, Texas



*Trim office building bespeaks pride in ownership. Business office occupies front portion, XY® dial equipment room at rear.*

*The Rectors have always considered this venture a family affair. Susann, Mrs. Rector, Larry and Fred, on cut-over night.*

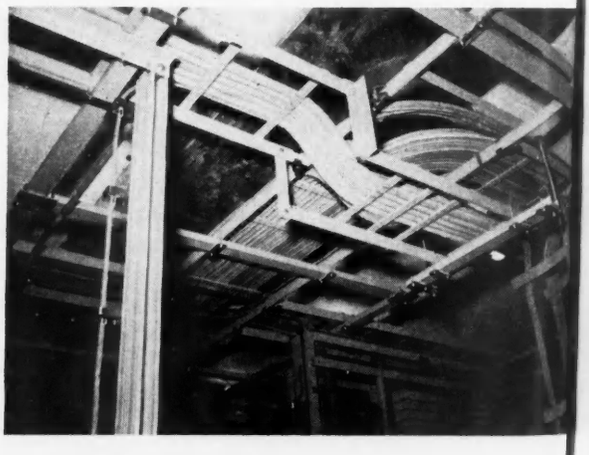


*Section of power board and trunk bays at Rosebud, Texas.*

Fred Rector is relatively a newcomer in the telephone business, although he's thoroughly familiar with volts and the details of harnessing electricity. What's more, he is an avid do-it-yourself fan.

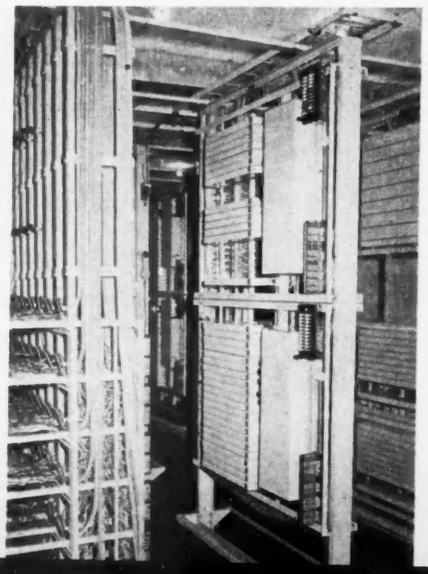
When this former power engineer decided to buy the Rosebud Telephone Company in the fast developing region south of Waco, Texas, he also made up his mind to bring a modern dial system to the community. This was five years ago. His first job was to improve service on an "as-is" basis, and get the public behind him. While this was going on, Fred's evenings were spent at the drawing board engineering the outside plant and central office system that was to be. He also undertook the job of designing the building which would house the equipment and provide a commercial office in keeping with the rest of the program. Using R.E.A. specifications as a guide, he has turned out the excellent plant you see on this page.

At midnight on December 4th his plans reached fulfillment as the 550-line XY® Dial System was placed in service. When he has a chance to catch up on held orders, he will have over 1000 subscribers — all proud of what he has done for them.

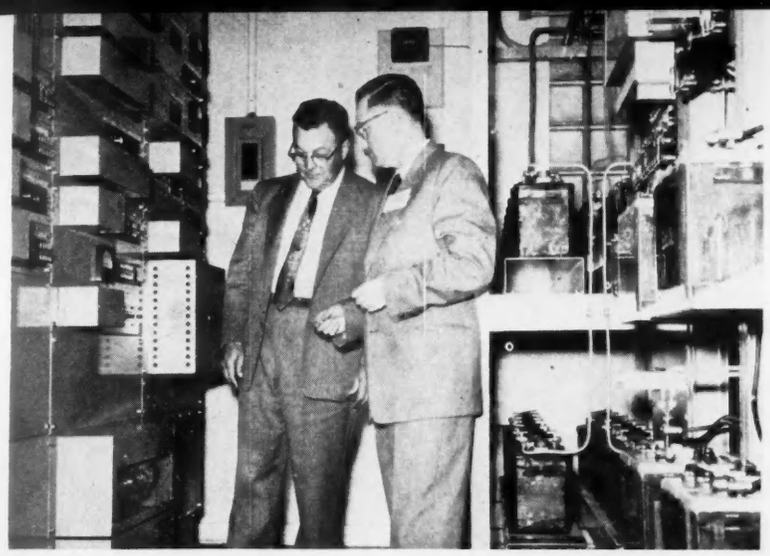


*Installation crew may take a bow. Unusual angle shot shows intricate pattern of overhead cabling.*

*Going on the assumption that dial service leads to an increase in number of subscribers, Fred has left plenty of room for expansion.*



*Standing with Fred Rector, center, are Joe Oswald and John Lewis of Southwestern Bell Telephone Co.*



*Mr. A. C. Davies, right, general equipment engineer for General Telephone Company of the Southwest, points out features of the Stromberg-Carlson dial equipment to Mayor Joe Dan Avinger of Sulphur Springs, Texas.*

## *Midnight was zero hour in Texas*

# Sulphur Springs and Winnsboro

The lights burned bright at midnight, and many were the customers who stayed up late to try out the new XY® Dial Systems recently cut over at Sulphur Springs and Winnsboro, Texas.

In fact, if the good people of Sulphur Springs had only known it, they could have had a joint celebration (long distance) with the subscribers at Rosebud, for both exchanges were cut at the same hour on the same day. But then, it's pretty hard to keep track of everything that's going on in Texas.

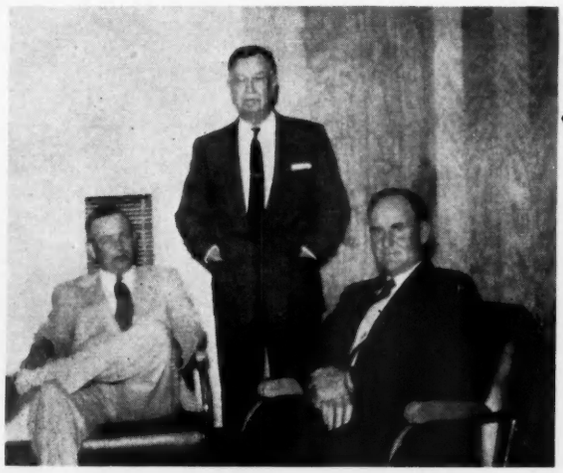
Sulphur Springs is an exchange of the General Telephone Company of the Southwest. With 2100 lines and 1800 terminals presently equipped, this office joined the nationwide intertoll dialing network at the same time it went dial. This was the 149th exchange of the Company to become dial operated and raises the percentage of dial 'phones to 73%.

Earlier in the fall the Southwestern States Telephone Company brought dial service and nationwide operator toll dialing to their Winnsboro, Texas, office. Toll calls will be handled through nearby Mount Pleasant. The 550-line exchange will be under the supervision of H. L. Tipps, senior exchange maintenance man; Mrs. Dorothy Wilcox, a former operator, will be in charge of the business office. Shortly after the cutover Mr. W. T. Moore, division manager of Southwestern States, invited the townspeople in to inspect their new central office and see for themselves the equipment which has taken over the operator's duties.

"How will these switch things know where Milly Jones went?" was the wistful comment of one subscriber.

*Don German, equipment supervisor for Southwestern States Telephone Company goes over last details before the Winnsboro cutover with Mr. Lancaster, also of Southwestern.*

*Things are looking up. Installers for General Telephone Company of the Southwest pull spacer strips at Sulphur Springs.*



*Officials of the Southwestern States Telephone Company attend cutover of dial exchange at Winnsboro, Texas. From left, William Van, commercial manager; W. T. Moore, district manager, Henderson; Paul Robinson, district plant superintendent, Kilgore.*

*Dial conversion completed. Shown after the Winnsboro cutover are (from left) Marvin Barnes, plant superintendent for Southwestern States Telephone Company; Jim Young, service engineer, Rex Atkinson, chief installer, and Earl Browell, sales representative — all of Stromberg-Carlson.*

George Forbes

# No. 6

# The Postman's Holiday: Tampa Area

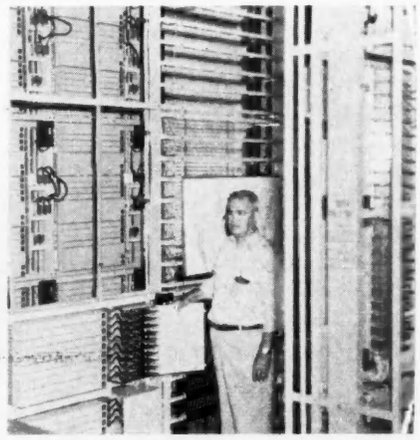
The first swim in the Gulf of Mexico had been the prime objective of at least half of the family. As we topped a rise and saw the blue water lapping the horizon, anticipation became practically uncontrollable. Our first Gulf Coast stop was at Tarpon Springs, Florida, home port for a still colorful sponge and shrimp fleet.

At Clearwater, Mr. S. C. Edmonds, manager of this 21,000-station exchange of the Peninsular Telephone Company, was in his office expecting us. He was quick to size up the situation — urged us to put off a tour of his beautiful new plant until we had had lunch and found a place to stay. With his assistance we were able to put up "99 steps from the Gulf"; Fred and Ann immediately volunteered to see if this count was accurate!

*Our host when we first arrived in Peninsular-land was Mr. S. C. Edmonds, Clearwater manager, shown with his chief operator, Mrs. Alice Paulk.*

It was fun to have a Saturday afternoon off. The water was as good as it looked, and we spent the rest of the day in and on it. In doing so we must have rubbed fins with a goodly portion of Mr. Edmond's customers, as well as a sizable fraction of the people they talk with on long distance, for Floridians — especially the immigres from the North — appreciate their most exploitable commodities — sun, water and uninhibited enjoyment. As soon as the tourists leave, the "natives" move to the beaches.

*Architecturally beautiful — and completely functional. The new Clearwater exchange is typical of the fine new buildings in operation and under construction.*



*Within the XY® equipment room at Clearwater, George Bolton, chief switchman, looks after service for 21,000 customers.*

This extension of "the season" to a 12-month's basis has made a tremendous difference in telephone company operation, Mr. Edmonds pointed out. It has more than justified the plant investment in new exchange buildings such as Clearwater, Largo, Venice, and South Gulf Beach, and the one now being constructed at Sarasota. The real impact of this change was made clear when I called at the General Office.

It does rain in Florida; this we found out on our way to call on Taylor Scott in Sarasota, and were sorry it cut our visit short. The new Sunshine Skyway — connecting St. Petersburg (and its 67,000-station exchange) with Bradenton — cuts hours of travel time for busy Pentel

*The Stromberg-Carlson No. 3 Toll Board installation at Clearwater. Special service desks at left, chief operator center.*

*Directories unlimited. Taylor Scott, Sarasota manager, shows a young visitor part of the collection representing cities connected through intertoll dialing.*

*Marcus Donaldson, chief engineer, and Mrs. Floy MacDuffie, traffic methods supervisor, snapped at approximately Position No. 89 in the Tampa toll room — largest toll installation serving any Independent company.*

executives travelling between northern and southern territories.

Mr. Scott will really roll out the welcome mat when his new Sarasota office is completed. Plans are finalized and the construction is well under way at this writing. Like many other managers, he has had to increase facilities on a temporary basis — adding 12 new toll positions since 1947 — while waiting for the completion of the new plant.

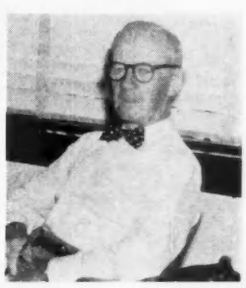
Monday your editor had the postponed tour of the Clearwater exchange, then spent the rest of the day at the Peninsular Telephone Company general offices in Tampa. The 12-story building, recently remodeled in line with the new organizational policy, is mute testimony to the place of this company in the economic life of West Florida. Mr. A. B. Jordan, vice president and recent recipient of a 45-year service pin, gave the first cordial welcome and saw to it that I met key personnel who were in the city.

Marcus Donaldson, chief engineer, and A. W. Anders, buildings and equipment engineer, led the way to the toll room, where Mrs. Floy MacDuffie, traffic methods supervisor, and Mrs. Mary Belle Kriehn, chief operator, are responsible for the largest toll installation serving Independents anywhere. This is where nationwide operator toll dialing really began.

Carl Brorein Jr., corporate secretary, told how his father, Carl Brorein Sr., president of Peninsular Telephone Company, presented Florida's millionth telephone to Gov. LeRoy Collins early last winter. More specifically he told of amazing growth within the Pentel Territory, serving 6,000 square miles in 10 counties.

Ben Darlington, general plant superintendent, pointed out the busy harbor from his window and mentioned the timely installation of ship-

*Carl Brorein, Jr., corporate secretary.*



*Mr. A. B. Jordan, vice president.*

*Ben Darlington, general plant superintendent.*

*He's certainly at home here: A. W. Anders, buildings and equipment engineer.*

*Stromberg-Carlson slope-front information desks speed toll calls through the busy long distance center at Tampa office.*

*"Information please."*

*Your editor heard about this trip at supper. It must have been fun!*

*Another corner of the Tampa toll room. Long distance calls are direct-dialed to almost every city in the country.*

*Sign of things to come. It will be a showplace when it's finished.*

to-shore service. Explaining that growth is not without problems, he told of the laying of two 900-pair submarine cables weighing 13,200 pounds each across a river.

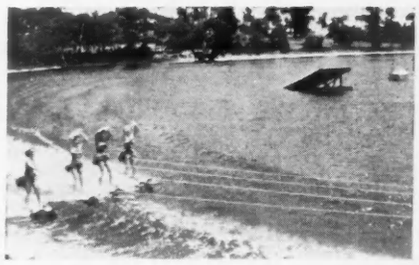
D. A. Kafka, assistant general manager, has a newly furnished Tampa commercial office of which he can well be proud. Also, recognizing the fact that Florida specializes in outdoor living, he installed 60 additional outdoor pay stations between September and January last year.

J. Hartwell Jones, public relations manager, has contributed much to the successful expansion program by keeping the public posted on what will be accomplished, and all the necessary steps which have to be followed in achieving the goal.

The total impression one receives in visiting the Tampa general office is of a large company which has a carefully planned program and is moving with dispatch toward its fulfillment in the near future.

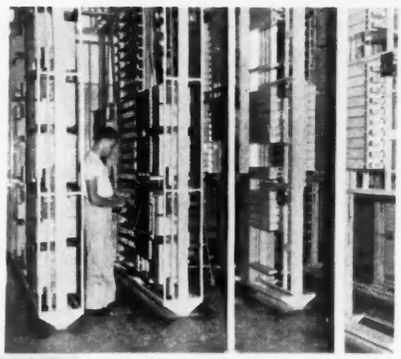
We had fish for dinner that night. The others had taken a short cruise and were fully successful — in finding a good fish market by the wharf! On Tuesday we had to tear ourselves away from Clearwater, after a prolonged morning dip, and started the long trek north again. Our route took us through Plant City, where a new half million dollar exchange was cut into service by Peninsular Telephone Co. in February, Rudy Mehaffey, local manager and Pentel's first 50-year employee, has personally seen a growth from 11 employees and 400 'phones to 44 employees and 4,100 'phones. In line with Peninsular's forward planning, the exchange is designed to anticipate a 300% growth.

Northward through the citrus belt and lake region, with a picnic at Cypress Gardens near the new 3-story exchange building at Winter Haven— then once again the tangy smell of salt water as we struck the Atlantic coast near Daytona.



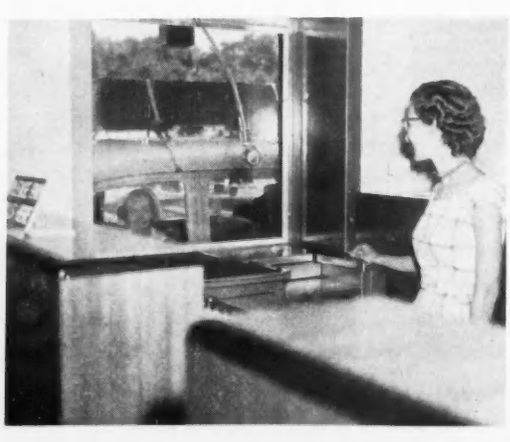
*Familiar scene to most Florida tourists — the incomparable exhibition of water skiing at Cypress Gardens, near Winter Haven.*

*Plant City, Florida, is extremely proud of its new XY® Dial System, cut into service this last February, and growing steadily.*



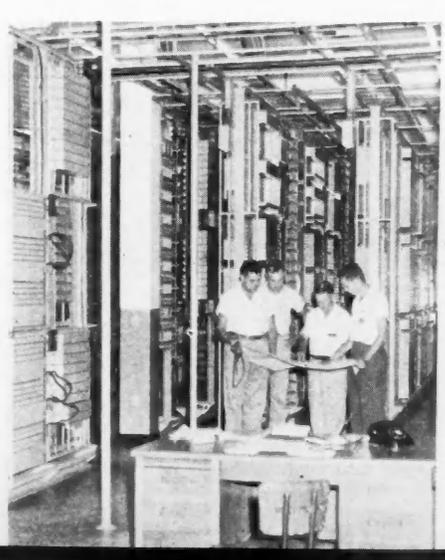
*Public relations with subscribers is made up of a lot of little things, including a building which serves their needs efficiently while at the same time boosting civic pride.*

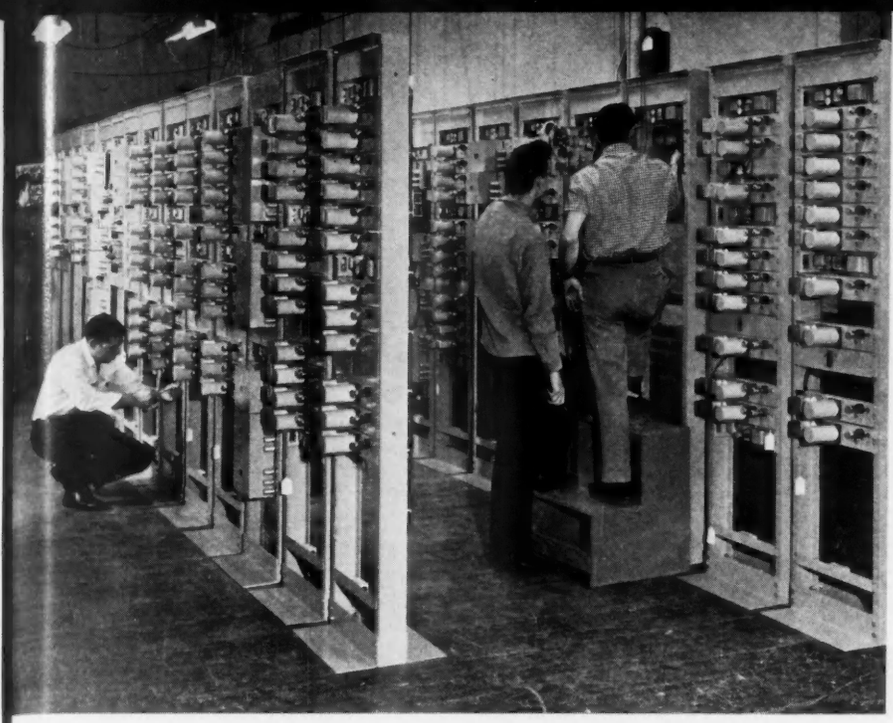
*Peninsular's first 50-year service pin was awarded to R. L. Mehaffey, now manager at Plant City, Florida.*



*Auto-cashier windows following the latest advances in "drive-in" techniques, are standard in new Peninsular offices.*

*Rudy Mehaffey calls the switchroom boys together to discuss routine maintenance schedules. Left to right: La Fare Stringer, Robert Hancock, Mr. Mahaffey, Fred Mulholland.*



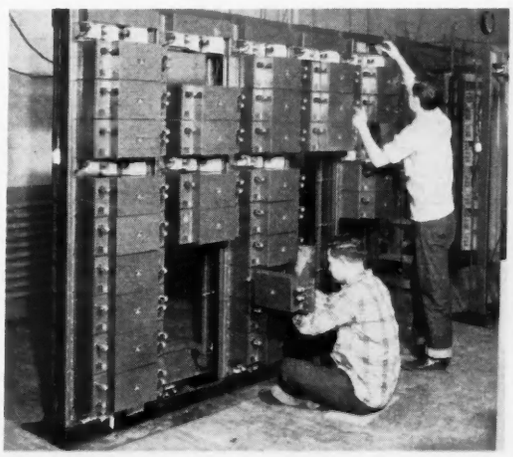


*Inspecting multiplex equipment for a large microwave system in the Stromberg-Carlson factory. From the left: Joe Ketchum, Al Beeley, Tom Cobb, Tony Catherine.*

# Carrier/Microwave production now swinging into high gear

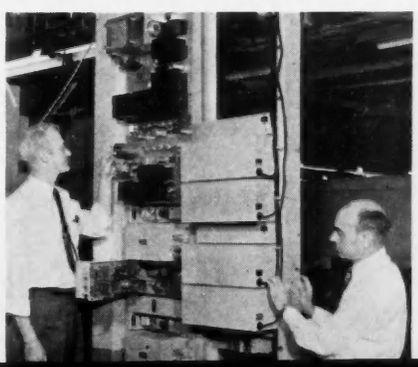
As this issue of the *Transmitter* is being written, Stromberg-Carlson sales representatives and sales engineers from all over the country are in Rochester for a general meeting. In touring the manufacturing areas they are impressed by the stepped-up production in all departments. The typical photos on this page show what the sales force is seeing in the carrier/microwave building, and some of the men guiding this activity.

*Versatility of production and personnel are part of the new carrier/microwave department. Part of a carrier telegraph system being checked out before packing.*



*Marion Royalty seldom has all of his sales engineers together at one time. In this picture we see Murt Shea, Bill Gaylor, Marion Royalty, Russ Naugle, Ed Espey. Missing from photo: J. E. Cornelius, E. G. Browell, E. H. Otterbacher.*

*Checking last minute details of a private 3-channel microwave system: Jack Troutman and Lee Ulrich, RF engineering.*



## Meet Marion Royalty

### *Chief of carrier/microwave sales engineering*

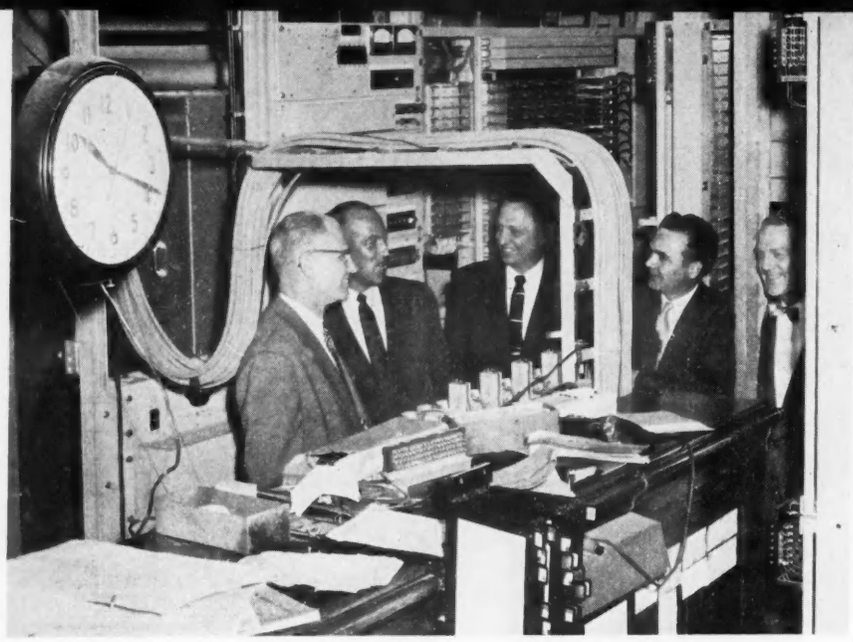
Right in the ebullient middle of the carrier/microwave expansion program sits a calm man who invites you to sit down and chat a bit even as he continues an uphill struggle with telephone calls, checking specifications, expediting deliveries.

Marion C. Royalty is a Texan in more than birth and accent; he has the Texan approach that no problem is too big to be solved, and that you shouldn't hold back on an idea just because it hasn't been carried out previously. But back of every acceptance of a new idea is the admonition, "Let's be sure before we use it," for Marion Royalty is first and foremost an engineer.

He likes to go back over the earlier years: how he went to school at Texas Tech in Lubbock with Fred Fairly — now Stromberg-Carlson branch manager in Kansas City — and how Fred helped get him his first job at Southwestern Associated Telephone Co. How the jingle of fresh coin in his pocket led him to shop for a car, but resulted in his marrying Goldie Henkaus, the dealer's daughter. He fondly remembers the quieter days of teaching on the faculty of Texas Tech before accepting a position with the Bell Telephone Labs for a radar development project.

It was natural for Southwestern Associated to want him back, and inevitable that he would be asked to assume greater responsibilities. For the nine years prior to joining Stromberg-Carlson he was chief protection and transmission engineer.

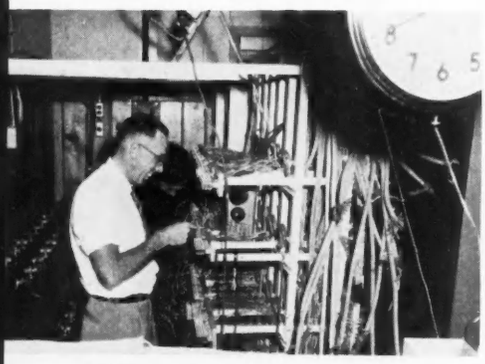
Marion is a member of the I.R.E., the A.I.E.E., Tau Beta Pi and a licensed professional engineer (Texas). For balance he has interested himself in church work as a board member, and for complete relaxation chooses the piano. He and Mrs. Royalty look forward to landscaping their new home in Rochester this spring.



***Forty minutes to go!***
*In spite of careful pre-cutover planning, there are always last minute details. Taking a breather just before the last round are (left to right): Ernie Austin, Pacific Tel. and Tel. of Portland; Jim Wells, president of Northwest Telephone Co.; Ken Johnson, Stromberg-Carlson; Ray Crockett, manager of Northwest Telephone Co.; Fred McGrady, Stromberg-Carlson.*

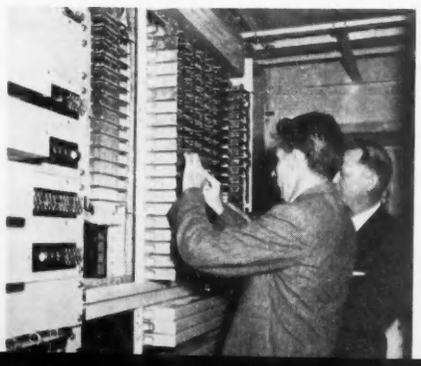
# This is Sheridan, Oregon

It could be anywhere, except for the people. Any manager who has converted to dial will recognize the situations as photographed at the Sheridan, Oregon, office of the Northwest Telephone Company. Three exchanges — Sheridan, Willamina and Grande Ronde — with a total of 460 lines — were cut over to XY® dial at 11 P.M. on November 5. Mr. Jim Wells, president of the Northwest Telephone Company, Ray Crockett, general manager, and Dean Filler, district manager, and Ernie Larson, Stromberg-Carlson sales representative, were there to oversee the work at "zero hour."



***Orderly confusion.***
*Now it's just seconds to go. Dean Filler, Northwest Telephone Co. district manager, is poised at the main frame terminal strips.*

***What caused that permanent?***
*They do happen, usually as a result of over-excitement by customers dialing for the first time. Eugene Sullivan, Stromberg-Carlson service engineer, and Ken Johnson are right on top of the situation.*



***Complete success.***
*From here on it's smooth sailing. Jim Wells and Ernie Austin, satisfied and relaxed, are about ready to call it an evening.*

# Are you a reader?

The Stromberg-Carlson *Carrier* — a monthly magazine containing technical articles in the general field of wire line carrier and radio multiplexing— has now been distributed for three months to those telephone company personnel who have indicated a desire for such a bulletin. The mailing list has grown beyond original expectation, so that the original printing order is now being reviewed. If you have not seen this magazine, we invite you to request a copy.

Address your request to:

G. B. Forbes, Editor,
Stromberg-Carlson,
Rochester 3, N.Y.

After examination, if you would like to receive further copies as issued, fill out the enclosed card giving the necessary mailing information.

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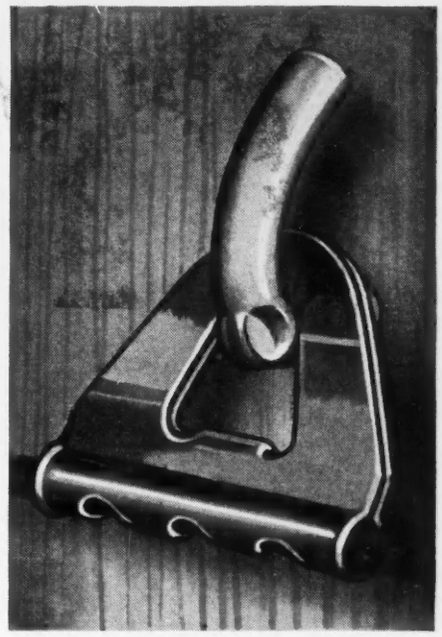

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# the BACK of the BOOK

By John G. Reynolds

**Real Estate Dept.**

IF YOU'RE in the market for a somewhat unusual country home, AT&T Long Lines people may have just what you're looking for. Just recently they were asking for bids for a radio relay tower near Antioch.

According to *Illinois Bell News*, the building, in case you don't know, is something on the order of a silo and towers about 85 feet in the air. It's built primarily to raise the "horns" which relay the electrical signals of the system high enough to overcome the curvature of the earth. As you might suppose, it's horizontal extent isn't too great. And while it's some six stories high, there is no elevator.

This tower was built originally as part of the Chicago-Milwaukee radio relay route. The route was later altered to swing westward toward Minneapolis, with a Milwaukee route jutting eastward. The change left this tower sitting off in space. Since there is nothing as useless as a radio relay tower with nothing to relay, the Long Lines people put it on the market.

A few enterprising souls have put in bids for the tower to use as a home. The chief inducement seems to be the two decks atop it, one some 15 feet above the other. Screened in, this area would provide an ideal summer sunbathing pavilion about 85 feet above the prying eyes of the neighbors.

**Help Wanted**

RECRUITING problems aren't new to the telephone business. But how long they've been with us may be gleaned from a recent bulletin of the *Chicago Historical Society*.

Giving some highlights of the news of 50 years ago from newspapers in the Society's collection, the *Bulletin* comes up with this historic item.

"July 24. The Chicago Telephone Company, plagued by the marriage of operators, advertises for girls. Inducements: pay while learning, free luncheons, 'delightfully restful surroundings,' and good pay — as high as $40 a month."

**Ascension Island**

BELL SYSTEM overseas service was extended recently to a new point, Ascension Island, which is a dependency of St. Helena. St. Helena is the little island, located 1,200 miles off the southwest coast of Africa, where Napoleon's meteoric career came to an end.

Ascension seems very unimportant when we consider that the island is inhabited largely by sea turtles, which come in vast numbers to lay their eggs in the sand, by rabbits, and by wild goats. Human inhabitants number less than 200. There are only 40 telephones in service. However, the 40 telephone subscribers are employes of Cable and Wireless, Ltd.

The local manager of that company enforces law and order as the Resident Magistrate on behalf of the St. Helena Government. And the company maintains and operates radio installations by means of which calls are routed between the United States and certain of the small countries on the Arabian Peninsula which have rich oil deposits.

**"16 Tons . . ."**

IN A RECENT issue, *Nation's Business* published some figures on the national debt, which bring it within the comprehension of the average person. In 1900, for example, if the debt had been liquidated individually each American would have had to dig down in his pocket and produce $16.60. In 1956, the picture is quite different. Today each person owes $1661.00, which is quite a sobering thought for a baby without a penny contemplating the future in his bassinet.

**"Everybody's 'Phone"**

ACCORDING TO Ralph Mahoney, of the Phoenix, Ariz., *Republic*, residents of the tiny, Southeastern Arizona village of Portal have the only community-owned telephone association in the state.

And to quote both a noted TV comic and the Mountain States Telephone & Telegraph Co.: "You can't hardly get them kind no more, even in Arizona."

On Dec. 17, 1954, the Portal Telephone Association bid slightly more than $100 for the forest service line.

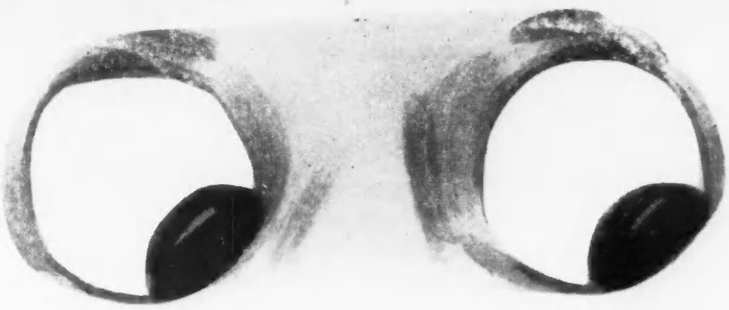
Originally the system was built to serve a 170 mile circuit connecting fire control towers in Coronado National Forest — a type of service which is found in other sparsely settled areas of Arizona and the West.

As members of a non-profit organization, subscribers pay from $3. to $20 per month depending on the distance from the switchboard. The makeshift switchboard is situated in a forest service-leased house in Cave Creek Canyon. It often breaks down.

Portal's 25 subscribers (the number jumps to 35 in fire weather season) are connected to the Mountain States' Rodeo, N.M., circuit, 12 miles southeast of the village, and through the Lordsburg, N. M., switchboard for long distance.

Because the service is undependable Portal folks keep their fingers crossed every time they lift up their receivers.

They never know when an accident or a serious illness will strike, and in cases of that nature they can only "pray that they will get through."



# Keep your eyes open for Paying Paystation Sites

Many telephone men successful in paystation promotion say it pays to look for likely sites after hours and on weekends. They keep their eyes open as they stop at the corner drugstore, help the wife shop, or stop at a filling station. They ask themselves: *Would a paystation earn a good return here?*

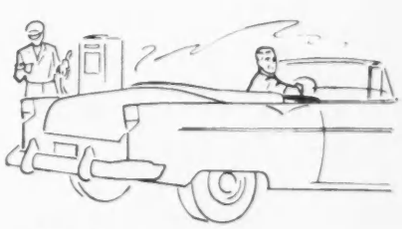
Locations like these and many others could be earning revenue for *you!* Make a note of them on the spot. Install Autelco Paystations in attractive booths, and use plenty of BIG signs. Write for Circular TM1842, "How to Make Paystations Pay."

Address: *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7. Or Call HAymarket 1-4300.*

**AUTELCO PAYSTATIONS**
**pay right around the clock, outdoors.**

**DRUG STORES**

**SUPER MARTS**



**FILLING STATIONS**

**AUTOMATIC ELECTRIC**

ORIGINATORS OF THE DIAL TELEPHONE

GENERAL TELEPHONE SYSTEM

# tough nut to crack!

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